

NOV 12 1963

CRPL-F 230 PART B

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PART B  
SOLAR - GEOPHYSICAL DATA

ISSUED  
OCTOBER 1963

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



## SOLAR - GEOPHYSICAL DATA

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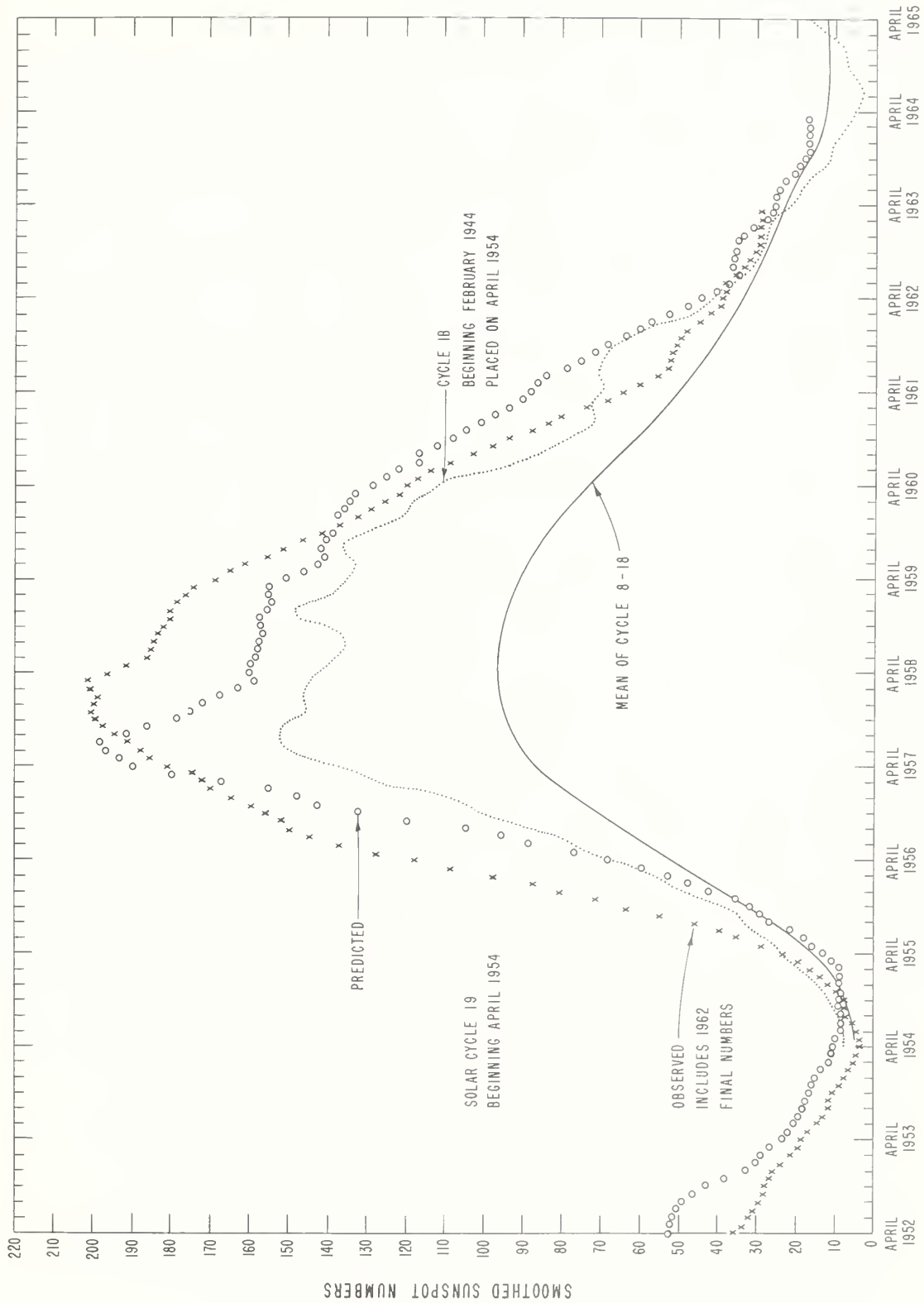


The text describing the contents of Part B was republished in November 1962. A revision was made December 1962, and an addenda January 1963.

## DAILY SOLAR INDICES

Aug. 1963	American Relative Sunspot Numbers $R_A'$
1	50
2	55
3	43
4	44
5	38
6	36
7	26
8	24
9	22
10	12
11	2
12	1
13	5
14	9
15	10
16	17
17	21
18	27
19	34
20	43
21	55
22	53
23	50
24	35
25	29
26	15
27	14
28	12
29	13
30	15
31	19
Mean:	26.7

Sept. 1963	Zürich Provisional Relative Sunspot Numbers $R_Z$	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	20	73
2	25	73
3	34	74
4	43	75
5	42	74
6	31	74
7	9	78
8	14	75
9	15	77
10	23	76
11	22	72
12	28	77
13	40	89
14	65	98
15	84	99
16	85	105
17	88	99
18	84	97
19	81	102
20	83	109
21	87	90
22	77	105
23	54	99
24	40	95
25	30	86
26	14	84
27	0	78
28	9	74
29	0	71
30	0	69
Mean:	40.9	84.9



PREDICTED AND OBSERVED SUNSPOT NUMBERS

## CALCIUM PLAGE AND SUNSPOT REGIONS

SEPTEMBER 1963

SEPT. 1963	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTA- TIONS)	DATE FIRST SEEN	DURA- TION (DAYS)	CMP VALUES		HISTORY
				AREA	INT.					AREA	COUNT	
1.3	N09	6942	6909	1400	2.5	$\ell \wedge \ell$	5	8/26	13	220	4	$\ell \searrow \ell$
2.6	N13	6946	New (1)	600	2.5	$b \nearrow \ell$	1	8/9	>10	20	2	$b - d$
3.9	S14	6951	New	(100)	(2)	$b \nearrow d$	1	9/6	2			
4.1	N07	6947	New	1100	3	$\ell \nearrow \ell$	1	8/29	13	150	8	$b \nearrow \ell$
4.8	S30	6952 (2)	New	(100)	(1.5)	$b - d$	1	9/6	1			
5.6	N42	6953 (2)	New	100	2	$b - d$	1	9/6	1			
6.1	N02	6957	New	(200)	(2)	$b \nearrow \ell$	1	9/8	3			
7.2	N15	6950	6916	(200)	(1.5)	$\ell - d$	2	9/1	1			
8.2	S09	6954	New	100	2	$b \wedge d$	1	9/5	7			
9.4	N03	6959 (2)	New	100	2	$b - d$	1	9/9	1			
11.0	S39	6962 (2)	New	200	1.5	$b - d$	1	9/11	1			
11.3	S15	6963	New	100	1.5	$b - d$	1	9/13	2			
12.0	N10	6955	6923	400	1	$\ell \wedge d$	5	9/6	9			
13.2	N09	6958	New	(200)	(2)	$\ell \searrow d$	1	9/8	2			
13.9	S10	6956	6924	900	2	$\ell - \ell$	2	9/7	13			
15.6	N08	6960	(3)	2000	2.5	$\ell - \ell$	5	9/9	13	30	2	$b - d$
16.0	S07	6961	(4)	2600	3.5	$\ell - \ell$	2	9/9	14	490	45	$\ell - \ell$
16.8	N06	6966 (5)	6929	600	2	$b \nearrow \ell$	5	9/10	13			
17.5	S13	6967	New	(400)	(1.5)	$b - d$	1	9/19	3			
20.3	N12	6964	6931	3900	3.5	$\ell \nearrow \ell$	3	9/13	15	1770	15	$\ell - \ell$
20.4	S11	6965	6932	900	2	$\ell - \ell$	2	9/14	13			
20.5	N30	6969	New	800	1.5	$b \nearrow \ell$	1	9/16	11			
23.3	N08	6975	New	(600)	(3.5)	$b \nearrow \ell$	1	9/28	2			
23.4	S15	6974	New	(600)	(2)	$b - \ell$	1	9/26	3			
26.0	S19	6970	New	200	3	$\ell \searrow d$	1	9/21	9			
27.0	N09	6968	6941	900	1.5	$\ell \searrow d$	3	9/20	10			
28.1	N08	6971	6942	800	2	$\ell \nearrow \ell$	6	9/22	12			
29.3	N34	6976 (2)	New	200	2	$b - d$	1	9/28	1			
29.7	N14	6980	New	(700)	(2.5)	$b \nearrow \ell$	1	10/2	>3			
30.1	N31	6972 (2)	New	(300)	(2)	$b - d$	1	9/25	1			
30 6	N10	6973	6947	900	2	$\ell \vee \ell$	2	9/25	>10	40	2	$b \wedge d$

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- (1) In position of 6919  
 (2) Small and very ephemeral  
 (3) 6927 and part of 6929  
 (4) 6926 and 6930  
 (5) Plage 6966 was originally a part of 6960.



# MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

.11b

SEPTEMBER 1963

Sep. 1963	TIME MEAS. UT	LAT	MER DIST	TYPE	Sep. 1963	TIME MEAS. UT	LAT	MER DIST	TYPE
1	No Obs.				12	1900	N05 S07 S10	E34 E34 E49	$\alpha_p$ $\alpha_f$ $\beta_p$
2	2105	N08	W24	$\alpha_p$					
3	1730	N12 N08 N13 N04 N11	W48 W37 W22 E06 E07	$\alpha_p$ $\alpha_p$ $\beta_p$ $\beta$ $\beta$	13	1900	N05 S06 S10	E20 E20 E34	$\alpha_p$ $\alpha_f$ $\beta$
4	No Obs.				14	1715	N06 S06 S10 N14	E07 E07 E21 E68	$\alpha_p$ $\alpha_f$ $\beta$ $\beta$
5	1445	N08 N11 N03 N11	W61 W49 W20 W18	$\alpha_p$ $\alpha_p$ $\beta$ $\beta$	15	2355	N06 S06 S10 N13	W09 W09 E04 E60	$\alpha_p$ $\alpha_f$ $\beta$ $\gamma$
6	1720	N08 N03 N12	W78 W37 W33	$\alpha_p$ $\beta_p$ $\alpha_p$	16	2220	N06 S10	W21 W10	$\beta$ $\beta_p$
7	1800	N03	W54	$\alpha_p$	17-19	No Obs.	N13	E46	$\beta\gamma$
8	2345	N03	W72	$\alpha_p$	20	1625	S11 N13	W67 W03	$\alpha_p$ $\gamma$
9	1845	N05 S05	E75 E77	$\alpha_p$ $\alpha_f$	21-26	No Obs.			
10	1700	N05 S06 S09	E62 E64 E76	$\alpha_p$ $\alpha_f$ $\alpha_p$	27	No Spots			
11	1805	N06 S06 S07	E48 E49 E60	$\alpha_p$ $\alpha_f$ $\alpha_f$	28	1735	N08	W69	$\beta_f$

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# PROVISIONAL CORONAL LINE EMISSION INDICES

SEPTEMBER 1963

CME Sep 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	x	x	x	x	x	x	x	x	5	17	22	28	43	78	21	44
2	4	6	x	x	2	2	x	x	6	14	29	42	31	59	17	36
3	x	x	x	x	x	x	x	x	11	16	28	66	40	115	14	15
4	26	45	9	12	6	6	10	14	10	12	x	x	8	20	x	x
5	22	31	12a	18a	7	20	12a	16a	3	3	8	8	13	20	7	10
6	x	x	x	x	x	x	x	x	8	11	9	12	8	9	10	12
7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8	11	17	x	x	6	8	x	44	4	5	11	15	6	7	14	17
9	7	8	36	43	7	8	36	36	x	x	x	x	x	x	x	x
10	14	25	25	36	5	8	27	36	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	6	11	16	24	6	8	21	39
12	25	31	26a	32a	19	37	26a	32a	10	18	9	10	6	6	7	10
13	10	16	16	20	19	36	16	22	x	x	x	x	x	x	x	x
14	15	29	17	25	25	60	16	18	74	140	x	x	25	39	x	x
15	18	31	17	48	10	31	18	34	62	106	27	36	47	95	15	16
16	49	101	11	28	36	95	12	12	49	87	15	21	49	84	12	12
17	18	22	13	15	13	30	19	34	27	39	19	26	26	39	11	16
18	9	12	7	9	6	9	9	11	12	20	27	32	40*	50	24	34
19	38	59	7	8	21	64	9	12	10	16	8	10	21	30	8	10
20	31*	44	10	12	23	74	13	28	22	81	13	16	43	95	23	37
21	x	x	x	x	x	x	x	x	11	20	24	32	33	59	18	28
22	6	8	11	16	8	8	11	15	5	6	34	38	17	36	44	76
23	x	x	x	x	x	x	x	x	3	5	19	24	16	45	26	42
24	x	x	x	x	x	x	x	x	2	5	x	x	10	17	x	x
25	11	17	27	32	8	14	24	37	2	4	11	13	7	9	8	12
26	8	15	14	20	4	5	16	25	11	21	9	16	14	18	9	16
27	x	x	x	x	x	x	x	x	3	5	6	8	9	12	1	4
28	36	64	x	x	3	4	x	x	4	8	7	12	8	16	8	12
29	19	28	25	47	6	8	32	48	4	6	9	12	14	15	6	8
30	22	34	16	24	3	3	16	20	2	2	8	12	2	2	8	8

x = no observations

\* = yellow line emission

a = index computed from low weight data

# SOLAR FLARES

SEPTEMBER 1963

OBSERVATORY	DATE SEPT 1963	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — UT	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX.	LAT.	MER. DIST.					MEAS. AREA Sq. Deg.	COOR. AREA Sq. Deg.	MAX. WIDTH R <sub>g</sub>	
MCMATH CAPRI-S WENDEL ISTANBUL WENDEL	01	0115	0600	NO FLARE	PATROL			1-	1	1507	.20	.20	G-SMF G-SMF	
	01	1506	1515	1507	N09 W06	694.2	61 D	1	3	1513	2.00	2.00		
	01	1510 E	1611 D		N08 W04	694.2	18 D	1			2.00	3.00		
	01	1530 E	1548 D		N10 W04			1-						
	01	1557 E	1608 D		N11 W03			1-						
	01	1616 E	1624 D		N11 W03			1-						
CAPRI-S WENDEL ISTANBUL WENDEL	01	1626 E	1639 D		N09 W05			1-					G-SMF G-SMF	
	02	0125	0600	NO FLARE	PATROL									
	03	0100	0600	NO FLARE	PATROL									
	03	1635	1655	NO FLARE	PATROL									
	03	1940	2400	NO FLARE	PATROL									
	04	0000	0600	NO FLARE	PATROL									
MCMATH	04	0600 E	0650 D		N06 W02	694.7	50 D	1	2	0603	2.40	2.40	G-SMF G-SMF	
	04	0632 E	0643 D		N04 E00	694.7	11 D	1			2.40	3.00		
	04	0655 E	0703 D		N08 W44			1-						
	04	0910 E	0920 D		N05 W02			1-						
	04	1805	1835	NO FLARE	PATROL									
	04	1840	1845	NO FLARE	PATROL									
HTE-PROVEN	04	1858	1924 D		N03 W11	694.7		1-	1	1900	.20	.20	G-SMF G-SMF	
	04	1905	1910	NO FLARE	PATROL									
	04	1925	2400	NO FLARE	PATROL									
	05	0000	0600	NO FLARE	PATROL									
	05	0735	0740	NO FLARE	PATROL									
	05	0900	0930	NO FLARE	PATROL									
HTE-PROVEN	05	1045	1105	NO FLARE	PATROL								G-SMF G-SMF	
	06	0115	0600	NO FLARE	PATROL									
	06	0959	1017	1010	N10 W29			1-		1010	1.50	1.70		
	06	1110	1120	NO FLARE	PATROL									
	06	1435	1445	NO FLARE	PATROL									
	07	0145	0600	NO FLARE	PATROL									
LOCKHEED	07	0615	0620	NO FLARE	PATROL								G-SMF G-SMF	
	07	0853	0908	NO FLARE	PATROL			1-						
	07	1030	1135	NO FLARE	PATROL									
	07	1852	1925	1905	S06 E01			1-	3	1905	.10	.10		
	08	0130	0545	NO FLARE	PATROL									
	08	1544	1604	NO FLARE	PATROL			1-		1551	.50	.90		
LOCKHEED	08	1548	1610	1557	N10 W59			1-	2	1551	.58	.85	G-SMF G-SMF	
	08	1550 E	1615	1554	N13 W62	694.7		1-		1555	.50	1.00		
	08	1555 E	1615	1600 U	N12 W61			1-		1600	.60	.90		
	08	1655	1711	1701	N12 E59			1-	2	1600	.60	.90		
	08	1811	1856	1820	N02 W70		45	1-	2	1701	.30	.60		
	08	1818	1836	1825	N01 W70	694.7		1-	2	1820	1.10	2.20		
LOCKHEED	08	1951	2006	1956	N02 W72	694.7		1-	2	1825	.50	1.50	G-SMF G-SMF	
	08	2006	2066	1956	S09 E90			1-	2	1956	.20	1.00		
	08	2150	2210	2155	N09 E90	696.0	20	1-	2	2155	.60	3.00		
	08	2150	2210	2155	N09 E90			1-						
	08	2150	2210	2155	N09 E90			1-						
	08	2150	2210	2155	N09 E90			1-						

COMMERCE - STADIARDS - SCALES

# SOLAR FLARES

## SEPTEMBER 1963

OBSERVATORY	DATE SEP 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST				MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H <sub>o</sub>	MAX. INT. °	
MCMATH LOCKHEED MCMATH LOCKHEED LOCKHEED	08	2152	2220	2157	N07 E90	6960	1-	2	2157	.80			
	08	2215	2250	2225	N12 W90	6946	1-	2	2225	.60	3.00		10
	08	2219	2235	2224	N15 W90	6946	1-	2	2224	.60			
	08	2240	2253	2245	N09 E90		1-	2	2245	.20	1.00		10
	08	2359	0023	0009	N11 W63		1-	2	0009	.50	.80		10
HTE-PROVEN CAPRI-S MEUDON MCMATH MCMATH	09	0100	0545	NO FLARE	PATROL								
	09	0902	1040		N04 W69		1-		0938	.80			
	09	0916	1007	D	N10 W60	6947	1	2	0934	2.00	4.00		
	09	0934	1037		N05 W69	6947	1-						
	09	1218	1228	1219	N11 W72	6947	1-	1	1219	.50	1.50		
OTTAWA HTE-PROVEN MCMATH MCMATH	09	1258	1315	1309	S06 E88	6961	1-	1	1309	.20			
	09	1304	1314	1309	S05 E88		1-	2	1309	.23	.98		
	09	1625	1704	D	S17 E90		1-						
	09	1634	1708	1649	S10 E90	6961	1-	2	1649	.70			
	09	1819	1834	1823	S09 E90	6961	1-	2	1823	.40			
ISTANBUL WENDEL	09	1930	1940	NO FLARE	PATROL								
	09	2005	2115	NO FLARE	PATROL								
	10	0150	0605	NO FLARE	PATROL								
	11	0115	0605	NO FLARE	PATROL								
	11	0725	0730	NO FLARE	PATROL								
SAC PEAK	11	0740	0745	NO FLARE	PATROL								
	11	0750	0805	NO FLARE	PATROL								
	11	0832	0840	D	S02 E71	6961	8 D	1					
	11	0833	0850	D	S03 E75	6961	17 D	1			3.00		
	11	0940	1020	NO FLARE	PATROL								
LOCKHEED	11	1100	1255	NO FLARE	PATROL								
	11	1439	1449	1443	S10 E60		1-	3		.29	.43		16
	12	0108	0126	0117	S06 E42		1-	2	0117	.20	.20		10
	12	0140	0730	NO FLARE	PATROL								
	12	0750	0800	NO FLARE	PATROL								
ISTANBUL	12	0805	0820	NO FLARE	S09 E57	6961	15 D	1					
	12	0830	0850	NO FLARE	PATROL								
	12	1030	1045	NO FLARE	PATROL								
	12	1055	1125	NO FLARE	PATROL								
	12	1130	1135	NO FLARE	PATROL								
SAC PEAK	12	1230	1240	NO FLARE	PATROL								
	12	1430	1434	1432	N06 E35		1-	3		.27	.29		16
	12	1905	1940	NO FLARE	PATROL								
	12	1941	1954	D	S08 E48		1-	3		1.42	1.77		18
	12	2016	2052	U	S08 E47	6961	36 D	1-	3	3.16	3.88		19
SAC PEAK	12	2141	2204	2153	S08 E48		1-	3		1.38	1.75		18
	12	2355	2400	NO FLARE	PATROL								
WENDEL	13	0110	0605	NO FLARE	PATROL								
	13	0600	0616	D	S11 E43	6961	16 D	1			4.00		
	13	0800	0805	NO FLARE	PATROL								
ARCETRI	13	0803	0820	NO FLARE	S03 E25		1-	3	0803	.70	.80		

# SOLAR FLARES

## SEPTEMBER 1963

OBSERVATORY	DATE SEPT 1963	OBSERVED UNIVERSAL TIME		MAX PHASE	LOCATION		DURA- TION MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END		APPROX. LAT.	APPROX. LONG. DIST.				TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH in	MAX. INT. %
ARCETRI	13	0803 E	0840		S06 E41	6961	37 D	1	3	0803	1.50	2.00		
	13	0925	0930	NO FLARE	PATROL									
	13	1000	1005	NO FLARE	PATROL									
	13	1003 E	1022 D		S10 E41	6961	19 D	1+			6.00			
	13	1005 E	1025 D		S09 E40	6961	20		3	1008	1.50	2.10		
	13	1015 E	1025 D		S07 E37	6961	10 D	1	1		3.00	4.00		
	13	1010	1020	NO ELARE	PATROL									
	13	1044 E	1130 D		N15 E90	6964	46 D	1	3	1044	1.00			
	13	1216 E	1311		N13 E90	6964	55 D	1	2	1227	.70			
	13	1313	1320	1316	N11 E90	6964		1-	2	1316	.40			
WENDEL	13	1325	1400	1335	N13 E90	6964		1-	2	1340	.30			
	13	1336 E	1343 D		S10 E38									
	13	1357 E	1403 D		S11 E39									
	13	1412 E	1435	1418	N13 E90	6964		1-	2	1418	.30			
	13	1414 E		1511	N06 E90			1-	2	1414	1.20			
	13	1506	1524		N13 E90			1-	3	1511	.29	1.46		
	13	1519 E	1524 D		S10 E37	6964	18	1-	3	1543	1.22	6.10		
	13	1532	1550	1543	N14 E90				3	1629	.52	2.42		
	13	1615	1658		N14 E89			1-	3	1652	.20	1.00		20
	13	1640 E	1700	1652	N13 E90	6964		1-	1	1653	.20			
LOCKHEED	13	1646 E	1657		N13 E90			1-	2	1702	.30	.30		10
	13	1652	1723	1702	S08 E32			1-	2	1702	.70	.74		17
	13	1658	1706	1658	S09 E34			1-	1	1702	.21	.21		19
	13	1700 E	1710 D	1703	S12 E36	6961		1-	3	1704	.47	2.16		
	13	1702	1728	1704	N16 E89		21	1-	1	1718	.50		4.40	
	13	1705	1726	1707	N04 E90	6964		1	1	1717				
	13	1709	1805	1717	N13 E90	6964	56	1	1	1722	.64	2.95		
	13	1714	1734	1722	N14 E89	6964	20	1	3	1824	.30	1.50		20
	13	1810	1940	1824	N13 E90			1-	2	1820	.40			
	13	1812	1915 D	1820	N13 E90	6964		1-	1	1922	.40			
MCNATH	13	1915 E	1936	1922	N13 E90	6964		1-	1	1951	.40			
	13	1941	2000	1951	N13 E90	6964		1-	1	2023	.30			
	13	2008	2038	2033	N13 E90	6964		1-	2	2046	.40			
	13	2043	2221 D	2046	N13 E90	6964		1-	2					
	14	0111	0146	0133	S09 E31			1-	2	0133	.50	.50		10
	14	0150	0605	NO FLARE	PATROL									
	14	0549 E	0612 D		N13 E85	6964	23 D	1	2	0606	.40	4.00		
	14	0606 E	0710 D		N13 E90	6964	64 D	1						
	14	0616 E	0712 D		N13 E85	6964	56 D	1	3	0805	.70	2.40		
	14	0805 E	0825 D		N14 E82	6964	20 D	1	2	0845	.70	2.40		
WENDEL	14	0835 E	0920 D		N14 E82	6964	45 D	1	2					
	14	0929 E	1003 D		N13 E84	6964	34 D	1	2	0950	.90	3.10		
	14	0935 E	1000 D		N14 E82	6964	25 D	1						
	14	0935 E	1000 D	NO ELARE	PATROL									
	14	1055	1100		N12 E80	6964	142 D	1	1	1230	.80	3.00		
	14	1208 E	1430		N12 E80	6964	28 D	1	3	1508	.41	.97		
	14	1232 E	1300 D		N13 E77			1-	3	1613	.47	1.11		
	14	1504	1531		N13 E77			1-	1	1610	.60	2.40		
	14	1603	1625	1610	N12 E80	6964	21	1	1					
	14	1604	1625											

COMMENTS - STANDARD - 5-STEP

# SOLAR FLARES

## SEPTEMBER 1963

OBSERVATORY	DATE	OBSERVED TIME			LOCATION			DURA TION MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX PHASE	APPROX LAT.	MER DIST	MCMATH PLAGE REGION				TIME U T	MEAS AREA Sq. Deg.	CORR AREA Sq. Deg.	MAX WIDTH H <sub>30</sub>	MAX INT. %
LOCKHEED	14	1640	1710	1656	S12 E21		6961	30	1-	2	1656	.50	.50		10
WENDEL	14	1641	1711		S08 E23		6961		1-				3.00		
MCMATH	14	1642	1656	1647	N12 E90		6964		1-	1	1647	.40	.40		
OTTAWA	14	1644	1655	1649	N13 E76				1-	3	1649	.70	1.60		
MCMATH	14	1644	1718	1650	S11 E23		6961		1-		1650	.90	1.00		
OTTAWA	14	1646	1709	1651	S08 E21				1-	3	1651	1.63	1.63		
WENDEL	14	1703	1712		N13 E90		6964	9	1-				3.00		
MCMATH	14	1703	1712	1708	N12 E80		6964		1-	1	1708	.40	1.60		
OTTAWA	14	1703	1712	1706	N14 E76				1-	3	1706	.52	1.20		
OTTAWA	14	1714	1724	1718	N14 E76				1-	3	1718	.64	1.47		
MCMATH	14	1715	1745	1718	N12 E80		6964	30	1-	1	1718	.50	2.00		15
SAC PEAK	14	1727	1435	1429	S12 E82				1-	2		.14	.35		
MCMATH	14	1751	1835	1758	N12 E78		6964	44	1+	2	1758	.90	3.60		
MCMATH	14	1835	1900	1842	N12 E78			25							
OTTAWA	14	1754	1801	1801	N14 E76				1-	3	1759	.47	1.07		
MCMATH	14	1902	1906	1903	N13 E80		6964		1-	2	1903	.10	.40		
MCMATH	14	1920	2100	1936	N12 E77			100	1+	2	1936	1.20	4.50		
MCMATH	14	2112	2205	2123	N12 E72		6964	53	1	2	2123	.80	2.40		
MCMATH	14	2212	2221	2212	N11 E71		6964	9	1-	3	2215	.70	2.10		20
LOCKHEED	14	2301	2334	2312	S09 E18				1-	2	2312	1.00	1.00		16
SAC PEAK	14	2304	2316	2314	S10 E08				1-			.87			
LOCKHEED	15	0015	0130	0040	N15 E70		6964	75	2	2	0040	5.20	10.20		30
MANILA	15	0025	0125	0038	N13 E63		6964	60	2	2	0038	5.50	8.80		S-SWP
LOCKHEED	15	0101	0130	0112	S09 E15				1-	2	0112	.80			10
WENDEL	15	0120	0610	NO FLARE	PATROL				1-						
WENDEL	15	0623	0636		S09 E16				1-						
WENDEL	15	0655	0704		S09 E08				1-						
WENDEL	15	0658	0747		N13 E71		6964	49	1+				5.00		
WENDEL	15	0754	0840		N13 E69		6964	46	1				4.00		
ARCETRI	15	0813	0828		N14 E67				1-	3	0813	.40	.80		
WENDEL	15	0910	0915	NO FLARE	PATROL										
WENDEL	15	0920	1035	NO FLARE	PATROL										
WENDEL	15	0930	1003		S11 E05		6961	33	1				3.00		
LOCARNO	15	0937	0955		S10 E05			18	1+	2					
WENDEL	15	0947	1022		N13 E67		6964	35	1				3.00		
WENDEL	15	1006	1016		N08 E62				1-						
LOCARNO	15	1015	1025		N14 E68		6964	10	1	2					
WENDEL	15	1029	1051		N13 E67		6964	22	1						
WENDEL	15	1055	1135	NO FLARE	PATROL										
WENDEL	15	1130	1144		N13 E66		6964	14	1				3.00		
MCMATH	15	1215	1222	1216	N13 E67		6964		1-	3	1216	.30	.70		
MCMATH	15	1236	1302	1248	N12 E65		6964	26	1	3	1248	.90	2.10		
WENDEL	15	1239	1254		N13 E65		6964	15	1				3.00		
OTTAWA	15	1243	1334	1315	N14 E65		6964	51	1	2	1315	1.81	3.00		
OTTAWA	15	1258	1300		S11 E04				1-	2	1300	.64	.64		
MCMATH	15	1258	1306	1301	S12 E04		6961		1-	3	1301	.50	.50		
SAC PEAK	15	1304	1330	1309	N08 E58				1-	3		.64	.93		15
SAC PEAK	15	1304	1330	1315	N08 E58				1-						
MCMATH	15	1305	1335	1311	N12 E65		6964	30	1	2	1311	1.10	2.60		S-SWP

# SOLAR FLARES

SEPTEMBER 1963

OBSERVATORY	DATE SEP 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER DIST				TIME — UT	MEAS. AREA Sq Deg	CORR. AREA Sq Deg	
WENDEL	15	1308 E	1337 D	N13 E66		29 D	1	3		4.00		
SAC PEAK	15	1326	1336	S12 E04			1-			.72		16
OTTAWA	15	1327	1343	S08 E04			1-	1	1331	.99	.72	
MC MATH	15	1339	1405	N12 E65			1-	1	1345	.20	.50	
SAC PEAK	15	1340	1400	N05 E62			1-	3		.43		15
MC MATH	15	1442	1447	N12 E65			1-	3	1443	.20	.50	
OTTAWA	15	1449	1504	N13 E66			1-	2	1458	.41	.69	
WENDEL	15	1457 F	1509 D	N13 E65			1-	2				
MC MATH	15	1512	1522	N12 E63			1-	2	1516	.40	.90	
OTTAWA	15	1515	1520	N13 E62			1-	2	1517	.41	.63	
SAC PEAK	15	1539	1544	N13 E69			1-	3		.43	.78	15
MC MATH	15	1541	1548	N13 E68			1-	2	1543	.70	1.60	
MC MATH	15	1700	1730 D	N12 E66			1-	2	1707	.80	1.60	
SAC PEAK	15	1724 E	1727 D	S07 W06			1-	2		.14		16
MC MATH	15	1745	1820 D	N12 E66			1-	2	1747	.60	1.20	
MC MATH	15	1828	1837	N12 E65			1-	2	1829	.40	.90	
LOCKHEED	15	1840	1903	S06 W07			1-	1	1854	.20	.20	20
MC MATH	15	1844	1857	S08 W08			1-	2	1850	.30	.30	
MC MATH	15	1858	1950 D	N12 E62			1-	2	1903	.50	1.00	
MC MATH	15	1950	2008 D	N10 E60			1-	2	2005	.40	.80	
MC MATH	15	2008	2108 D	N10 E60		60 D	2+	2	2030	5.00	10.00	S-SWF
MC MATH	15	2108	2146 D	N10 E60		38 D						
MC MATH	15	2146	2223 D	N10 F60		37 D						
LOCKHEED	15	2014	2210	N12 E52		116	2	2	2031	5.80	8.70	30
SAC PEAK	15	2020 E	2130 U	N11 E52		70 D		2		6.60	8.31	24
MC MATH	15	2100 E	2155	S12 W02			1-	2	2121	.20	.20	
MC MATH	15	2100 E	2155	S12 W02			1-					
SAC PEAK	15	2109	2120	N14 E63		11	1	2		1.71	2.64	20
LOCKHEED	16	0004	0105 D	N12 E54		61 D	1	1	0048	2.60	3.90	30
SAC PEAK	16	0041	0058 D	N12 E58		17 D	1	3		2.29	3.30	20
MANILA	16	0105	0610	PATROL								
	16	0420 E	0430 D	N12 E51		10 D	1	1				
HTE-PROVEN	16	0620	0635	PATROL								
WENDEL	16	0729	0740 D	N14 E59		41 D	1-		0735	.40	.70	
HTE-PROVEN	16	0730	0811 D	N13 E56			1-			4.00		
ARCETRI	16	0733 E	0743	N12 E52			1-		0735	.70	1.20	
ARCETRI	16	0805 E	0845 D	N13 E54			1-	3	0805	.80	1.50	
CAPRI-S	16	0814	0841 D	S08 W03			1-	3	0824	.80	.80	
ARCETRI	16	0815	0820	S09 W04			1-	3	0815	.70		
WENDEL	16	0816 E	0828 D	S09 W04			1-					
WENDEL	16	0832 E	0854 D	N13 E56		22 D	1			3.00		
WENDEL	16	0929 E	0939 D	S09 W05			1-					
ARCETRI	16	0930 E		S09 W04			1-	3	0930	.50	.50	
WENDEL	16	0938	1057	N13 E55		79	2			10.00		
CAPRI-S	16	1018 E	1055 D	N13 E54		37 D	1+	3	1032	1.50	2.60	
MCUDON	16	1023 E	1028 D	N13 E55		5 D	1					
SALTSJORBADN	16	1025 F	1104 D	N12 E51		39 D	2+	1	1035	8.00	12.00	
HERSTMONCFU	16	1040 E	1050	N13 E54		10 D	2	2	1040	4.10	5.60	
WENDEL	16	1102 E	1115 D	S04 W16			1-					
SALTSJORBADN	16	1104 E	1113 D	S05 W12			1-	2	1104	1.00	1.00	



## SOLAR FLARES

SEPTEMBER 1963

III

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	APPROX. LAT.	APPROX. MER. DIST.				M:MATH PLACE REGION	TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH Hr	MAX. INT %
SEP 1963															
SALTSJOBADN	16	1200 E	1232 D	N13 E53		32 D	1	2	1213	1.50	2.40			S-SWF	
CAPRI-S	16	1203 E	1226 D	N13 E55		23 D	1	2	1208	1.50	2.60				
WENDEL	16	1300 E	1329 D	N13 E52		29 D	2	3		4.74	5.94		19		
SAC PEAK	16	1302	1320	N10 E50		18	2	3	1305	4.73	5.96				
OTTAWA	16	1303	1324	N10 E50		21	2	2	1307	2.90	4.60			S-SWF	
CAPRI-S	16	1303 E	1334 D	N10 E45		31 D	1	2	1316	5.60	7.70				
HERSTMONCEU	16	1314 E	1318 U	N13 E52		4 D	2	2	1324	1.50	2.40				
MCMATH	16	1324 E		N12 E50			1	3	1335	1.34	1.65		17		
SAC PEAK	16	1331	1410 U	N10 E50		59 D	2	2		3.80	5.20			S-SWF	
MCMATH	16	1331 E	1430 D	N12 E50			2	3		3.00	3.37		19		
MCMATH	16	1331 E	1430 D	N12 E50		34 D	1	3		3.00	3.30				
WENDEL	16	1350 E	1424 D	N13 E52			2	2	1429	1.86	2.23		20		
SAC PEAK	16	1423	1433	N10 W10			1	3	1459	1.40	1.67			SLOW S-SWF	
MCMATH	16	1424	1432	N10 W10		300 D	2+	2		1.86	2.23				
MCMATH	16	1430	1930 D	N12 E50		57 D	1	3		1.40	9.00				
SAC PEAK	16	1435 U	1532	N11 E46		104 D	2	1	1505	4.00	6.80				
OTTAWA	16	1439	1609	N13 E46		53 D	2	3	1513	3.82	1.05			S-SWF	
WENDEL	16	1440 E	1624 D	N12 E47		80	2	2	1511	6.00	8.2				
CAPRI-S	16	1447 E	1540 D	N13 E54		61 D	1	3	1539	1.40	1.83		17		
OTTAWA	16	1450	1523	N14 E52			1	3	1621	4.54	5.8				
LOCARNO	16	1450	1610 D	N12 E47		13	1	3	1621	4.03	4.91		20		
HERSTMONCEU	16	1511 E	1612	N13 E51		12	1	3	1517	2.58	2.56			S-SWF	
OTTAWA	16	1527	1609	N14 E53		18	1	2		2.90	3.00				
SAC PEAK	16	1605	1633	N12 E48			1	3		3.38	3.38		19		
OTTAWA	16	1617	1630	N13 E48		7	1	3	1628	1.44	1.40				
SAC PEAK	16	1511	1523	S09 W10		16 D	1	2	1634	2.40	2.50			S-SWF	
MCMATH	16	1512	1530	S09 W09		17	1	3	1631	1.11	1.11				
WENDEL	16	1514 E	1524 D	S09 W07			1	3	1717	2.23	2.23				
OTTAWA	16	1515	1523	S08 W07		10	1	2	1752	3.56	3.56				
ZURICH	16	1628	1635	S07 W07			1	3	1753	3.30	3.30			S-SWF	
SAC PEAK	16	1628	1635	S09 W08			1	3	1813	3.30	3.50				
WENDEL	16	1628 E	1644 D	S09 W09		16 D	1	2	1834	3.70	3.89				
MCMATH	16	1628	1645	S08 W06		17	1	3	1831	2.70	2.80				
OTTAWA	16	1629	1643	S08 W08			1	2	1906	2.0	2.0			S-SWF	
OTTAWA	16	1715	1724	S08 W12			1	3	2016	2.0	2.0				
MCMATH	16	1716	1722	S08 W12			1	2	2035	2.0	2.0				
MCMATH	16	1747	1800	S10 W12			1	3	2047	1.11	1.34		18		
OTTAWA	16	1749	1759	S08 W08			1	2	2047	1.70	1.80			S-SWF	
MCMATH	16	1809	1818	N12 E52		43	1	2	2113	2.10	3.00				
OTTAWA	16	1810	1816	N14 E51			1	3	2110	2.10	2.87				
MCMATH	16	2005	2010	N13 E51			1	2	2110	2.10	2.87				
MCMATH	16	2012	2030 D	N15 E52			1	3	2110	2.10	2.87			S-SWF	
MCMATH	16	2033	2040	S08 W09			1	2	2110	2.10	2.87				
MCMATH	16	2044	2100 D	S08 W15			1	3	2110	2.10	2.87				
SAC PEAK	16	2058	2127 D	N13 E48			1	2	2113	2.10	3.00				
MCMATH	16	2100	2143	N12 E49			1	3	2110	2.10	2.87			S-SWF	
HUANCAYO	16	2107 E	2124 D	N12 E48			1	2	2110	2.10	2.87				
SAC PEAK	16	2222	2232	S09 W09			1	3	2110	2.10	2.87				
SAC PEAK	16	2228 E	2232	N12 E50			1	2	2110	2.10	2.87				
	16	2315	2330	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16	2355	2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16		2400	PATROL			1	3	2110	2.10	2.87			S-SWF	
	16		2400	PATROL			1	2	2110	2.10	2.87				
	16														



# SOLAR FLARES

SEPTEMBER 1963

OBSERVATORY	DATE SEPT 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MAX. PHASE				MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %		
SAC PEAK	17 0005	0020		PATROL	NO FLARE		1-	2		.58	.60		16	
	17 0029	0044		N12 E44	0033									
WENDEL	17 0100	0630		PATROL	NO FLARE		2				12.00			
	17 0629	0734		N13 E43		6964								
WENDEL	17 0755	1025		PATROL	NO FLARE									
	17 0823	0904		N13 E42		6964	1				3.00			
WENDEL	17 0955	1043	D	N13 E41		6964	2				10.00			
	17 0956	1007		N13 E40		6964	48 D							
ZURICH	17 0956	1007		N13 E40		6964	11	3	0956	6.00	7.80			
	17 1000	1050	D	N13 E37		6964	50 D	3	1024	.90	2.00			
SALTSJOBADN	17 1208	1230	D	N12 E40		6964	22 D	1	1211	2.00	2.50			
MC MATH	17 1231	1237	D	N14 E42	1233	6964	6 D	3	1233					
	17 1237	1255		N14 E41	1239		18							
SALTSJOBADN	17 1231	1245	D	N14 E41	1239	6964	14 D	3	1237	2.00	2.60			
	17 1237	1252		N13 E44	1348	6964	15	1	1239	1.81	2.10			
OTAWA	17 1340	1430	D	N12 E38	1435	6964	50 D	3	1348	.90	2.20			
	17 1430	1650	D	N12 E38	1435		140 D	3						
MC MATH	17 1347	1352		S10 W22	1348	6961		1	1348	.30	.30			
	17 1429	1445		N12 E39	1435		1-	3		.70	.72		18	
SAC PEAK	17 1432	1440	D	N12 E37	1434		1-	2	1434	.76	.83			
OTAWA	17 1459	1505		N13 E40	1501	6964	42 D			6.00				
	17 1459	1505		N09 E39	1517	6964	1-	3	1501	.20	.20			
MC MATH	17 1511	1521		N09 E39	1516	6964	1-	3		.66	.68		17	
SAC PEAK	17 1513	1520		N13 E42	1552	6964	1-	2	1516	.20	.20			
	17 1550	1555		N13 E42	1552	6964	1-	3	1552	.27	.29		17	
MC MATH	17 1550	1556		N13 E41	1552	6964	1-	2	1552	.20	.20			
	17 1550	1558		N13 E41	1552		1-	2	1552	.64	.72			
OTAWA	17 1600	1627	D	N13 E40	1625	6964	27 D	2		3.00				
	17 1624	1627		N13 E36	1625		1-	2	1625	.41	.44			
MC MATH	17 1624	1631		N12 E37	1625	6964	1-	2	1625	.30	.30			
WENDEL	17 1632	1638	D	N14 E41	1634	6964	1-	2	1634	.20	.20			
	17 1632	1640		N13 E41	1634	6964	1-	2	1634	.47	.53			
OTAWA	17 1632	1642		N13 E41	1634	6964	1-	2	1634	2.20	3.00			S-SWF
	17 1650	1820	D	N12 E40	1711	6964	1-	2	1711					
MC MATH	17 1820	1910	D	N12 E35	1827	6964	90 D	2						
MC MATH	17 1820	1910	D	N12 E34	1932	6964	50 D	2	1827	3.20	3.80			
	17 1910	2100		N12 E34	1932	6964	110 D	2	1932	3.40	4.00			
MC MATH	17 1916	1945	D	N12 E36	1928	6964	29 D	1	1932	1.90	2.40	2.80		
	17 1929	1945		S09 W25	1931	6961	1-	1	1931	.20	.20			
HUANCAYO	17 1929	1945		S09 W26	2006	6961	1-	1	2006	.20	.20			
	17 2003	2018		S09 W26	2006	6961	1-	1	2006	.20	.20			
MC MATH	17 2133	2139		N12 E37	2136	6964	1-	2	2136	.20	.20			
MC MATH	17 2141	2147		S09 W27	2142	6961	1-	2	2142	.20	.20			
	17 2205	2220		NO FLARE	NO FLARE		1-	2	2142	.20	.20			
SAC PEAK	17 2250	2310		PATROL	NO FLARE									
	17 2313	2316	D	N06 W37	2313 U		1-	1		.37	.41		16	
	17 2355	2400		PATROL	NO FLARE									
	18 0000	0005		PATROL	NO FLARE									
	18 0045	0100		PATROL	NO FLARE									
MANILA	18 0105	0625		PATROL	NO FLARE		1-	2	0400	.50	.51			
	18 0352	0405		N13 E26	0400		1-	1	0624	.50	.51			SLOW S-SWF
MANILA	18 0619	0624	D	N16 E26										

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — UT	MEASUREMENTS			MAX. WIDTH H <sub>g</sub>	MAX. INT %	PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT	MER DIST					McMATH PLAGE REGION	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
SALTSJOBADN	18 SEP 1963	18 0845	0850	NO FLARE	PATROL		67 D	1+	1	1318	4.40	4.90				
	18 0900	0910	NO FLARE	PATROL			45 D	1	1	1248	2.50	2.80			18	
	18 0955	1145	NO FLARE	PATROL				1-	2		.43	.43				
	18 1205	1215	NO FLARE	PATROL				2+	2	1418	6.00	6.60				
	18 1225	1230	NO FLARE	PATROL												
	18 1233 E	1340 D		N14 E24		6964										
	18 1246 E	1331 D		N12 E25		6964										
	18 1323 F	1335	1327 U	N11 E25												
	18 1358	1520	1418	N12 E24		6964										
	18 1358	1520	1430	N12 E24												
	18 1359	1505	1418	N15 E25		6964		66	2	1418	5.68	5.74				
	18 1407	1450	1420	N13 E26		6964		43	1		3.71	3.71			19	
	18 1530	1536	1532	N13 E25				1-	2		.43	.43			17	
	18 1530	1537	1533	N13 E25		6964		1532	2	1532	.20	.20				
	18 1532	1550	1535	N14 E25				1535	3	1535	.47	.47				
	18 1605	1637	1612	N12 E23		6964		1612	2	1612	.50	.50			18	
	18 1612 E	1614 D	1612 U	N13 E25				1707	2	1707	.87	.87				
	18 1702	1710	1704	N12 E24		6964		1708	3	1708	.76	.76				
18 1702	1711	1704	N14 E24							.72	.72			18		
18 1704 E	1709	1706	N13 E25							1.30	1.40		4.00			
18 1704	1710	1706	N12 E23		6964		49	1-	2	1704	1.90	2.00				
18 1853	1942	1910	N11 E20					1-	2	1910	1.07	1.07			19	
18 1908 E	1929	1911	N13 E21					1-	2		.60	.80				
18 1916	1927	1918	S11 W43		6961			1-	2	1918	.87	1.03			18	
18 1917	1928	1918	S11 W43					1-	2		3.00	3.20				
18 2045	2202 D	2100	N12 E21		6964		77 D	1	2	2100						
18 2045	2202 D	2132	N12 E21													
18 2205	2400	NO FLARE	PATROL													
18 2246 E	2320 D	2249 U	N12 E17		6964		34 D	1	2		3.16	3.09			20	
SAC PEAK	19 0000	0020	NO FLARE	PATROL												
	19 0019 E	0100 D	0019 U	N12 E16		6964		1	1		2.87	2.83			17	
	19 0100	0510	NO FLARE	PATROL												
	19 0540	0615	NO FLARE	PATROL				1-								
	19 0644 E	0651 D		N13 E16												
	19 0655	0745	NO FLARE	PATROL												
	19 0721 E	0728 D		N13 E16				1-								
	19 0746 E	0802 D		N13 E16				1-								
	19 0835	0855	NO FLARE	PATROL												
	19 0848 E	0902 D		S13 W48				1-								
	19 0921 E	0931 D		N13 E15				1-								
	19 1228 E	1242 D		N13 E14				1-								
	19 1233 E	1238		N13 E13		6964		1-								
	19 1325	1341	1328	S10 W53				1-	1	1235	.50	.50			17	
	19 1327 E	1341 D		S09 W51				1-	3		.14	.21				
	19 1407	1415	1408	S10 W51				1-			.43	.58			16	
	19 1418	1423	1420	S12 W43				1-			.14	.17			16	
	19 1505	1555	1515	N13 E10				1-			.17	.17			16	
19 1629	1642 D		N13 E12		6964		1642	1	1642	.80	.80					
19 1630	1643		N12 E08				1630	2	1630	1.30	1.30					
19 1715	1720	NO FLARE	PATROL													

## SOLAR FLARES

SEPTEMBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IN- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	MER. DIST.					MC-MATH FLARE REGION	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
SAC PEAK	19 SEPT 1963	1740	1805	NO FLARE										
	19	1759 E	1802 D		PATROL			1-						16
	19	1810	1815	NO FLARE	N13 E09									
	19	1820	1825	NO FLARE	PATROL									
	19	1929 E	1949 D		PATROL		6964							
MC-MATH	19	1930	1935	NO FLARE	N13 E09									
	19	1945	2020	NO FLARE	PATROL									
	19	2045	2050	NO FLARE	PATROL									
	19	2052 F	2056 D		PATROL			1-						16
	19	2055	2150	NO FLARE	N12 E09									
SAC PEAK	19	2206	2210		PATROL									
	19	2230	2250 U	2208	N14 E11			1-						17
	19	2234	2300	2233	N12 E10			1-						18
	19	2234	2300	2244	N11 E04			1-						16
	19	2258 E	2355	2259	N12 E11		6964							21
SAC PEAK	19	2321 U	2335	2324	S10 W60			1-						17
	20	0000	0700	NO FLARE	PATROL									
	20	0055 E	0115	0108	N12 E07			1-						
	20	0652 E	0658 D		N15 E05			1-						
	20	0706	1007		N15 E05		6964	2+						
CAPRI-S ISTANBUL	20	0715 E	0754 D		N14 E04		6964	39 D						
	20	0713	0820		N04 W12		6964	67						
	20	0825	0910	NO FLARE	PATROL									
	20	0834 E	0844 D		S09 W62			1-						
	20	0847 E	0903 D		S11 W59			1-						
SALTS-JORADN	20	0907 E	1107 D		N14 E04		6964	120 D						
	20	0952 E	1054 D		S10 W60			1-						
	20	1303 E	1316 D	1303 U	N02 W03			1-						
	20	1523 E	1525 D	1524 U	N10 W04			1-						
	20	1658	1734	1709	N11 W06		6964							
LOCKHEED	20	1702	1730	1704	N11 W01		6964	36						
	20	1719 E	1724 D	1720	N10 W05		6964	28						
	20	2101	2124	2108	S11 W56			5 D						
	20	2111 F	2127		S12 W62		6961	16 D						
	20	2118	2130	2119	N16 W03		6964	1-						
MC-MATH	20	2126 E	2147 D	2128	N09 W08		6964	1-						
	20	2128	2200	2139	N09 W07			1-						
	20	2255	2348	2310	N10 W09			1-						
	20	2255	2348	2300	N10 W09			1-						
	20	2314	0053 D	0007	N10 W10		6964	99 D						
SAC PEAK	20	2314	0053 D	0024	N10 W10			2						
	20	2351 F	0135 D	0003	N14 W09		6964	104 D						
	20	2357 F	0210		N14 W09		6964	133 D						
	20	2358 E	0001	2359	N11 W18			1-						
	21	0145	0615	NO FLARE	PATROL									
MANILA	21	0312 F			N12 W10		6964	1						
	21	0800	0915	NO FLARE	PATROL									
	21	1015	1025	NO FLARE	PATROL									
	21	1252	1312 D		N12 W09			1-						
	21	1254 E	1323 D		N17 W10		6964	29 D						
HTE-PROVEN SALTS-JOBADN	21	1254 E	1323 D		N17 W10		6964	1						
	21	1254 E	1323 D		N17 W10		6964	1						
	21	1254 E	1323 D		N17 W10		6964	1						
	21	1254 E	1323 D		N17 W10		6964	1						
	21	1254 E	1323 D		N17 W10		6964	1						

# SOLAR FLARES

## SEPTEMBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER DIST.				TIME — U.T.	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha.	
OTTAWA	21	1405	1420	N12 W16		19 D	1-	2	1408	1.05	1.05		SLOW S-SWF
SALTISJOBADN	21	1407	1426 D	N12 W12			1-		1410	2.00	2.00		
OTTAWA	21	1547	1606	N11 W19			1-	1	1554	.47	.47		
MCNATH	21	1723	1740	N16 W16			1-	1	1728	.20	.20		
LOCKHEED	21	1835	1845	N14 W12			1-	1	1841	.90	.90		
MCNATH	21	1839	1843 D	N15 W13			1-	1	1841	.60	.60		
HUANCAYO	21	1840	1912	N14 W14		32 D	1-	1	1844	.30	.30		
LOCKHEED	21	1951	2001	N14 W13			1-	2	1956	.50	.50		
LOCKHEED	21	2058	2112	N14 W13			1-	2	2105	.90	.90		
MCNATH	21	2058	2130 D	N14 W16			1-	2	2102	1.00	1.00		
MCNATH	21	2058	2118	N14 W16			1-	2					
SAC PEAK	21	2207	2217 D	N12 W22			1-	1		.37	.35		18
MANILA	22	0025	0043	N12 W16			1-	2	0030	.35	.35		S-SWF
MANILA	22	0100	0115	N11 W22			1-	2	0104	.40	.40		
MCNATH	22	0125	0605	PATROL			1-						
HTE-PROVEN	22	1136	1152	N12 W19		16	1	2	1138	2.00	2.20		
OTTAWA	22	1138	1200	N16 W24		22 D	1	2	1139	3.27	3.28		
CAPRI-S	22	1138	1207 D	N10 W15		29 D	1	3	1142	3.30	3.60		
OTTAWA	22	1252	1303	N08 W30			1-	2	1254	1.11	1.15		
MCNATH	22	1505	1630 D	N12 W31			1-	1	1510	.90	1.00		
SAC PEAK	22	1608	1619	N13 W32			1-	3		.50	.52		
MCNATH	22	2124	2132	N16 W33			1-	2	2126	.10	.10		
MCNATH	23	0105	0410	PATROL			1-						
WENDEL	23	0702	0714 D	N13 W34			1-						
WENDEL	23	0705	0716 D	N13 W38			1-						
MCNATH	23	1233	1245	N16 W38			1-	2	1235	1.00	1.30		
OTTAWA	23	1532	1551	N14 W41			1-	2	1541	1.75	1.98		
MCNATH	23	1535	1553	N16 W40			1-	1	1543	1.50	1.70		
SAC PEAK	23	1538	1551	N16 W40			1-	3		1.42	1.59		
CAPRI-S	23	1541	1600 D	N18 W33			1-	2	1544	1.00	1.30		
MCNATH	23	1743	1758	N16 W40			1-	1	1748	1.00	1.30		
LOCKHEED	23	1743	1758	N15 W37			1-	2	1748	.70	.70		
SAC PEAK	23	1744	1758	N16 W40			1-	3		.87	.95		
SAC PEAK	23	1807	1825	N16 W40			1-	3		1.01	1.11		
MCNATH	23	1808	1813 D	N16 W40			1-	1	1809	.80	1.10		
MCNATH	24	0055	0610	PATROL			1-						
WENDEL	24	0814	0838 D	N10 W58		24 D	1						
MCNATH	24	1317	1340	N16 W50			1-	1	1318	.20	4.00		
OTTAWA	24	1433	1518	N13 W53		45	1	3	1447	3.62	4.70		
SAC PEAK	24	1438	1512 U	N16 W52		34 D	1	2		3.30	4.13		
MCNATH	24	1439	1517	N16 W52		38	1	1	1452	1.30	2.10		
CAPRI-S	24	1443	1517 D	N08 W45		34 D	1	1	1454	1.30	2.10		
SAC PEAK	24	1450	1550	N08 W45		60	1	2		1.71	2.56		
HUANCAYO	24	1500	1511	N14 W50			1-	2	1503	.90	1.30		
OTTAWA	24	1516	1524	N14 W61		8	1-	3	1519	1.40	2.13		
OTTAWA	24	1705	1715	N14 W53			1-	3	1707	.82	1.07		
MCNATH	24	1706	1711	N16 W53			1-	1	1707	.60	1.00		
MCNATH	24	1830	1915 D	N16 W54			1-	1	1840	.20	.30		

# SOLAR FLARES

SEPTEMBER 1963

OBSERVATORY	DATE SEPT 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER DIST.				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H <sub>o</sub>	MAX. INT. %
LOCKHEED [ ] MCMATH [ ] LOCKHEED [ ] LOCKHEED	24	1916	1945	N32 E25			1-	2	1920	.60	1.10		10
	24	1938 E	1959 D	N16 W54			1-	1	2002	.60	1.00		
	24	1959 E	2115 D	N16 W54			1-	1	2034	1.10	1.40		20
	24	2052	2034	N16 W53			1-	1	2351	1.00	1.30		20
ISTANBUL	25	0110	0655	NO FLARE	PATROL	8	1						
	25	0700	0708	NO FLARE	N14 W67								
	25	0755	0820	NO FLARE	PATROL								
	25	0835	0850	NO FLARE	PATROL								
HTE-PROVEN	25	0945 E	0951	N15 W62		6 D	1		0946	1.30			
	25	1030	1045	NO FLARE	PATROL								
	25	1055	1125	NO FLARE	PATROL								
	25	1056 E	1056 D	N13 W63			1-		1056	.60			
HTE-PROVEN	25	1130	1140	NO FLARE	PATROL								
	25	1213 E	1250 D	N12 W68			1-	2	1217	.40	.90		
	25	1255	1325	N12 W68			1-	1	1308	.40	.90		
	25	1325	1333	N12 W68			1-	2	1321	.52	.84		
OTTAWA [ ] MCMATH [ ] MCMATH	25	1318	1327	N16 W65			1-	1	1321	.80	1.90		
	25	1321	1330	N11 W66			1-	2	1328	.41	.88		
	25	1359	1404	N12 W69			1-	1	1400	.40	1.00		
	25	1412	1418	N11 W67			1-	2	1416	.52	.70		
OTTAWA [ ] MCMATH [ ] SAC PEAK	25	1413	1424	N12 W69			1-	3	1418	.50	1.30		18
	25	1444 E	1421 D	N13 W69			1-	3		.78	1.36		16
	25	1622	1636	N14 W73			1-	3	1733	.21	.39		
	25	1730	1737	N16 W68			1-	1	1843	.50	1.40		
SAC PEAK [ ] MCMATH [ ] MCMATH	25	1842	1847	N13 W70			1-	1	1843	.30	.50		
	25	2039	2044	N10 W71			1-	3	2043	.27	.50		16
	25	2040	2045	N11 W73			1-	1	2043	.30	.50		16
	25	2307	2313	N09 W75			1-	3	2354	.39	.83		20
LOCKHEED	25	2349	0004	N12 W71			1-	1		.30	.60		
	26	0115	0620	NO FLARE	PATROL								
	26	0650	0700	NO FLARE	PATROL								
	26	0701 E	0845 D	N15 W75		104 D	3		0723	7.20			
HTE-PROVEN	26	0715 E	0925	N15 W78		130 D	2+	2	0735	4.80	17.80		
	26	0715 E	1021 D	N13 W76		186 D	3	2	0741		6.00		
	26	0741 E	0835	N15 W74		54 D	2	3					
	26	0855 E	1000 D	N15 W80		65 D	2						
ISTANBUL [ ] SAC PEAK [ ] MCMATH	26	1354	1357	N12 W88			1-	3	1356	.33	.57		19
	26	1355	1400	N11 W85			1-	2	1356	.30			
	26	2120	2123 D	N11 W90			1-	1	2121				
	26	0650	0615	NO FLARE	PATROL								
SAC PEAK	27	2342	2359 D	N17 W90			1-	2		.29			16
	28	0000	0005	NO FLARE	PATROL								
	28	0050	0630	NO FLARE	PATROL								
	28	1421 E	1436	N08 W68			1-	2	1426	.30	.90		
MCMATH [ ] OTTAWA	28	1424	1434	N08 W66			1-	2	1428	.64	1.00		

Slow S-SWF

## SOLAR FLARES

SEPTEMBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX. LAT.	MER. DIST	MCNATH PLACE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H <sub>o</sub>		MAX. INT F <sub>2</sub>
MCNATH	SEP 29 1963														
	29	0105	0620	NO FLARE	PATPOL	6975	1-	1	1807	*20					
	29	1806	1815	1807	N08 W85										
	30	0040	0620	NO FLARE	PATPOL										

CORRECTED - STATIONAL - SOLAR

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH,
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPETOWN	ROYAL OBSERVATORY,	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNAYA PAKHRA, USSR
	CAPE OF GOOD HOPE	KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N. MEX. USA
CAPRI F	CAPRI, ITALY (GERMAN)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJÖBADEN	STOCKHOLM, SWEDEN
CAPRI S	CAPRI, ITALY (SWEDISH)	MCNATH	MCNATH-HULBERT	SCHAUINS	SCHAUINSLAND, GFR
CRIMEE	SIMEIZ, USSR		PONTIAC, MICH., USA	TACKENT	TASHKENT, USSR
HERSTWONCEU	ROYAL GREENWICH OBSERVATORY,	MOSCOU	MOSCOM-GAISH, USSR	WENDEL	WENDELSTEIN, GFR
	HERSTWONCEUX, ENGLAND				
HTE-PROVEN	HAUTE-PROVENCE		NEW SCHAUIN FREIBURG, GFR		

ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

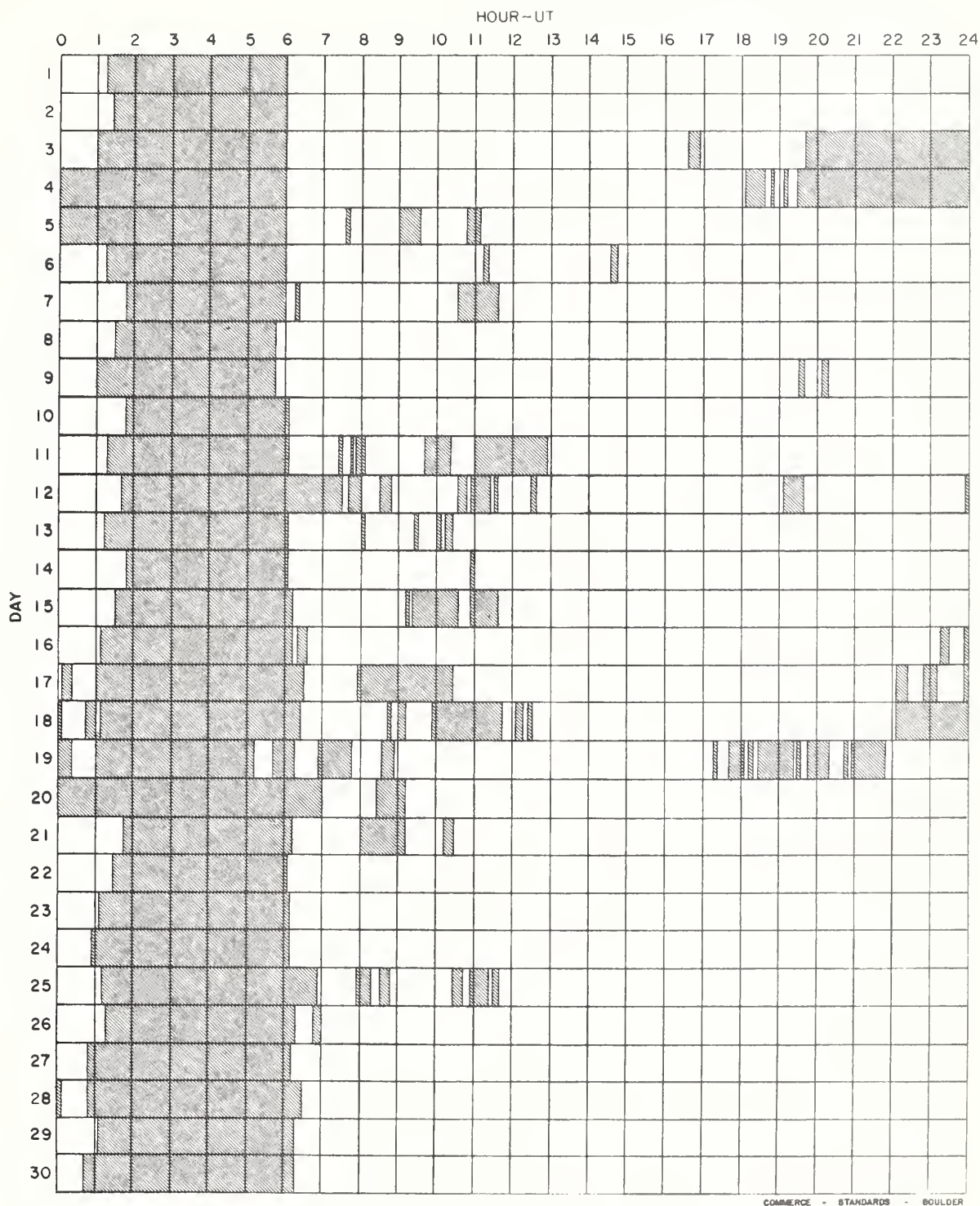
E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.



# INTERVALS OF NO FLARE PATROL OBSERVATIONS

III<sub>m</sub>

SEPTEMBER 1963



Stations Include:

Arcetri	Haute-Provence	Huancayo	Lockheed	Ottawa
Capri-S (Swedish)	Herstmonceux	Istanbul	McMath-Hulbert	Sacramento Peak

# SOLAR FLARES

JUNE 1963

OBSERVATORY	DATE JUNE 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — UT	MEASUREMENTS		MAX. WIDTH H <sub>30</sub>	MAX INT. °	PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MC-MATH PLACE REGION					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
NEW SCHAUIN — ONDREJOV — ARCETRI — CAPETOWN — KHARKOV	01	0850 E	0930 D	N08 E53	6821	40 D	1			2.00	3.20	2.60		
	01	0852 E	0925 D	N10 E45	6821	33 D	2	2	0903					
	01	0855 E	0918 D	N06 E49	6821	23 D	1	2	0900	1.47	2.24			
	01	0906 E	0927	N10 E50	6821	21 D	1		0906	2.20	3.50			
	01	1126 E	1159	N13 W17	6815	33 D	2	1	1145	10.31	11.30	2.00		
LOCKHEED	01	1830	1840	NO FLARE										
	01	2329	2336	2332	N11 W18		1-	2	2332	.20	.20		10	
CAPRI-F	02	0105	0150	NO FLARE	PATROL									
	02	0200	0210	NO FLARE	PATROL									
	02	0940	0945	NO FLARE	PATROL									
	03	0055	0140	NO FLARE	PATROL									
	03	0150	0200	NO FLARE	PATROL									
CAPRI-F	03	0205	0215	NO FLARE	PATROL									
	03	1557 E	1612 D	N09 E24			1-	2	1557	.25	.27			
	03	2310	2330	NO FLARE	PATROL									
	03	2350	2400	NO FLARE	PATROL									
	04	0000	0100	NO FLARE	PATROL									
CAPETOWN	04	0120	0220	NO FLARE	PATROL									
	04	0230	0240	NO FLARE	PATROL									
	04	0951	1030	0958	N11 E12		1-		0958	1.20	1.30			
	04	2355	2400	NO FLARE	PATROL									
	05	0000	0015	NO FLARE	PATROL									
HONOLULU	05	0100	0120	NO FLARE	PATROL									
	05	0200	0245	NO FLARE	PATROL									
	05	1025	1030	NO FLARE	PATROL									
	06	0115	0255	NO FLARE	PATROL									
	06	2105	2120	NO FLARE	PATROL									
CLIMAX	06	2135	2250	NO FLARE	PATROL									
	06	2345	2400	NO FLARE	PATROL									
	07	0000	0010	NO FLARE	PATROL									
	07	0205	0255	NO FLARE	PATROL									
	07	1924	1936	1928	S12 E18		1-	1	1928	.82	.82			
HONOLULU	07	1926	1935	1928	S11 E20		1-	1		.20	.20			
	07	1946	1950 D	1948	N12 E18		1-	1	1948	.72	.72			
	07	1946	1954	1951	S11 E20		1-	1		.30	.30			
	07	2305	2335	NO FLARE	PATROL									
	07	2337 E	0034 D	0010	S11 F14		1-			1.00	1.00			
HONOLULU	08	0006 E	0102 D	0015	S11 E11	56 D	1	2	0015	2.50	2.50			
	08	0025	0050	0027	S13 E16		1-	2	0027	.72	.72			
	08	0135	0200	NO FLARE	PATROL									
	08	0300	0310	NO FLARE	PATROL									
	08	0655 E	0705	0655	S11 E12		1-	2	0655	1.00	1.03			
CAPRI-F	08	0655 E	0705	0655	S11 E12		1-	2	0655	1.00	1.03			
	08	0749 E	0819	N14 E52	6832	30 D	1	2	0749	1.90	3.20	1.60	100	
KODAIKIL	08	0819	0947 D	0932	N17 E53	88 D	1			2.68				
NIZMIR	08	0819	0947 D	0932	N17 E53	88 D	1							



# SOLAR FLARES

JUNE 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MAX. PHASE			TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH Re	MAX INT. °
ARCETRI HONOLULU	JUNE 1963	08 0834 E	0928 D	N14 E50	6832	1948	1	3	0834	1.27	1.38		
		08 1948 E	2054	S13 E07			1-	1	1948	.61	.61		
CLIMAX		09 0015	0025 D	S15 E04			1-						
LOCKHEED		09 0015	0029	S13 E04			1-			.60	.60		
HONOLULU		09 0018	0028	S13 E08			1-		0020	.50	.50		20
		09 0200	0300	NO FLARE			1-		0020	.82	.82		
CLIMAX		09 1829 E	1833	N09 E29			1-		1829	1.30	1.30		
HONOLULU		09 1900 E	1942	S13 W08			1-		1930	.93	.93		
HONOLULU		09 1948	1956	S11 W12			1-		1950	.31	.31		
HONOLULU		09 2012	2030	N10 E58			1-		2022	.82	1.24		
HONOLULU		09 2016	2032	N09 E25			1-		2020	1.75	1.84		
HONOLULU		09 2038	2130	N10 E58			1-		2116	.62	.93		
HONOLULU		09 2126	2212	N08 E26	6832		1-		2206	2.03	2.08		
HONOLULU		09 2202	2208	N10 E24			1-		2204	1.45	1.47		
HONOLULU		09 2150	2220	N10 E58			1-		2200	1.24	1.85		
HONOLULU		09 2240	2320	N10 E58			1-		2256	1.34	2.01		
HONOLULU		09 2342	0006	N10 E58			1-		2350	.72	1.08		
		10 0035	0055	NO FLARE									
		10 0130	0140	NO FLARE									
UCCLE		10 0150	0225	NO FLARE									
HONOLULU		10 1651	1700 D	N12 E18			1-		1818	1.03	1.64		
HONOLULU		10 1818 E	1820	N06 E60			1-		1848	.62	.84		
HONOLULU		10 1846 E	1858 D	S12 W24			1-		2242	1.44	1.47		
HONOLULU		10 2236	2246 D	S13 W24			1-		2310	.41	.44		
HONOLULU		10 2308	2314	S11 W26			1-		2356	.72	.76		
HONOLULU		10 2350	0002	S11 W26			1-						
		11 0016 E	0022	S11 W26			1-		0018	.62	.65		
HONOLULU		11 0122 E	0200 D	S12 W27	6827		1		0150	2.24	2.34		
HONOLULU		11 0305	0515	NO FLARE									
		11 0535	0600	NO FLARE									
UCCLE		11 0808	0830	N12 E12			1-						
UCCLE		11 0845	0854	N06 E50			1-						
TACHKENT		11 0846	0900	N07 E56			1-		0847	.45	.90		85
NIZMIR		11 0848	0853	N08 E58			1-			1.34			80
TACHKENT		11 0932	0958	N14 E07			1-		0941	1.45	1.60	3.60	85
TACHKENT		11 1009	1034	N15 E08			1-		1015	2.05	2.30		85
UCCLE		11 1010	1035	N14 E09			1-						
ZURICH		11 1015 E	1030 D	N12 E09	6832		1						
UCCLE		11 1132	1141	N11 E06			1-						
UCCLE		11 1225	1246	N11 E06			1-						
UCCLE		11 1351	1356	N11 E10			1-						
UCCLE		11 1526	1548	N11 E04			1-						
HONOLULU		11 1810 E	1836	S09 W36			1-		1830	.93	1.02		
HONOLULU		11 1822	1830	N11 E02			1-		1826	.52	.52		
HONOLULU		11 1944	1950 D	N13 W01			1-		1948	.62	.62		
HONOLULU		11 1958	2002	S08 W37			1-		2000	.31	.31		
HONOLULU		11 2028	2038	N13 E03			1-		2032	1.34	1.34		
CLIMAX		11 2029 E	2039	N13 E02			1-			1.00	1.00		

COMMERCE - STANDARDS - BOULDER

## SOLAR FLARES

JUNE 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX PHASE	APPROX. LAT.	MER. DIST.				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ho		MAX. INT. %
VOROSHILOV	JUNE 1963	11 2228	2258	2236	S11 W39			1-	2		.72			50	
VOROSHILOV	11 2300	2306		2303	N12 W02			1-	2		1.26			50	
VOROSHILOV	11 2306	2316 D			N14 E03			1-	2	2314	.80			54	
	11 2315		2345	NO FLARE	PATROL										
	12 0155	0200		NO FLARE	PATROL										
TACHKENT	12 0206	0221		0212	N14 E02			1-	3	0212	1.00	1.00		125	
TACHKENT	12 0244	0337		0256	N14 E00			1-	3	0309	.64	.70	2.00	80	
TACHKENT	12 0244	0337		0324	N14 E00			1-	3						
TACHKENT	12 0505	0520		0511	N12 W09	6832	15	1-	3	0511	5.47	6.00		65	
ONDREJOV	12 0526 E	0530			N13 E01			1-	3	0527			2.00		
TACHKENT	12 0526 E	0548		0529	N15 W01			1-	3	0528	.64	.70	1.80	85	
ONDREJOV	12 0542	0544			N09 W07			1-	3	0543			1.40		
UCCLE	12 0842 E				N11 W07			1-	3						
UCCLE	12 1103	1137			N11 W10			1-	3						
NEW SCHAUIN	12 1104	1143			N13 W04	6832	39	1	2		2.30	2.40			
ZURICH	12 1105	1132			N12 W10	6832	27	2	2	1105		6.00			
ONDREJOV	12 1107	1122		1115	N12 W05	6832	15	1+	3	1115			2.70		
UCCLE	12 1107	1123			N11 W08			1-	3						
KIEV KO	12 1110 F	1130 D		1116	N15 W03			1-	3	1116	4.13			60	
UCCLE	12 1116	1130 D			N10 W12			1-	3						
ONDREJOV	12 1118	1127 D		1123	N08 W12	6832	9 D	2	2	1123			3.80	80	
KIEV KO	12 1120	1130		1122	N13 W12	6832	10	1+	3	1122	2.06				
UCCLE	12 1212	1218			N10 W12			1-	3						
NIZMIR	12 1213				N14 W08			1-	3		.90			70	
NIZMIR	12 1253	1303 D			N12 W12			1-	3		2.27			60	
UCCLE	12 1503	1505 D			N11 W13			1-	3						
UCCLE	12 1550	1556 D			N10 E40			1-	3						
UCCLE	12 1609	1630 D			N14 E42			1-	3						
NEW SCHAUIN	12 1614 E	1630			N04 E41			1-	2		.50	.80			
HONOLULU	12 1816	1834		1820	N17 W07			1-	2	1820	.31	.31			
HONOLULU	12 1832	1838		1834	N14 W06			1-	2	1834	.51	.51			
	12 1845	1855		NO FLARE	PATROL										
HONOLULU	12 2040 E	2044 D		2042	N12 W17			1-	2	2042	.82	.82			
	13 0037	0051		0042	N10 E33			1-	2		.90	1.00			
HONOLULU	13 0044	0058		0046	N09 E30			1-	2	0046	.52	.53			
CLIMAX	13 0103	0112		0106	N11 E34			1-	2		.70	.80			
HONOLULU	13 0136	0148		0140	N10 E31			1-	2	0140	.52	.54			
HONOLULU	13 0158	0200 D		0200	N17 W08			1-	2	0200	1.55	1.55			
	13 0300	0320		NO FLARE	PATROL										
	13 0325	0420		NO FLARE	PATROL										
ONDREJOV	13 0420 E	0445		0445	N12 W14	6832	25 D	1+	3	0420	1.08		3.20		
ABASTUMANI	13 0546 E	0555 D		0548 D	N16 W10	6832	9 D	1	2					75	
NIZMIR	13 0620	0641 D		0624 D	N13 W21			1-	3		1.34			60	
NIZMIR	13 0644	0654 D		0646	N18 W11			1-	3				3.00		
ONDREJOV	13 0646	0650		0647	N14 W11			1-	3	0647	.40	.50			
NEW SCHAUIN	13 0647 E	0652			N14 W13			1-	3			2.00			
ZURICH	13 0647 E	0653			N16 W09	6832	6 D	1	3	0647					
ONDREJOV	13 0751 E	0758			N12 W16			1-	3	0751			3.40		
ONDREJOV	13 0848 E	0859			N13 W22			1-	2	0857			1.80		

# SOLAR FLARES

JUNE 1963

OBSERVATORY	DATE	OBSERVED TIME		LOCATION		DURATION MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX.	MAX. PHASE				TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH deg.	MAX. INT. %
NEW SCHAUBIN	13	0852 E	0900	N13 W23	0855		1-	1	0855	.40	.50		
CRIMEE	13	0953	0904	N14 W24			1-	1		.90			
TACHKENT	13	0854	0908	N15 W23			1-	2		.73	.80		85
TACHKENT	13	0935	1010	N16 W15	0946		1-	2	0946	.91	1.00		115
NEW SCHAUBIN	13	0940	0950	N14 W17			1-			.60			
TACHKENT	13	1111	1227	N12 W25	1132		1-	2	1132	1.09	1.20		85
TACHKENT	13	1111	1227	N12 W25	1148		1-						
ONDREJOV	13	1144 E	1153	N08 W23			1-	3	1148	.40	.40	2.10	
CLIMAX	13	1312	1317	N16 W25	1314		1-			.70	.70		
CLIMAX	13	1431	1438 D	N16 W27	1434		1-			.51	.53		
CLIMAX	13	1621	1639	S12 W64	1632		1-	1	1838	1.85	1.90		
HONOLULU	13	1836	1840	N14 W22	1838		1-	1	1920	.31	.53		
HONOLULU	13	1852	1936	N16 W22	1920		1-	1	1920	.31	.53		
HONOLULU	13	1855	1910	NO FLARE			1-	1	1916	1.27	1.27		
HONOLULU	13	1916 E	1918	S11 W64	1916		1-	1	1942	.31	.32		
HONOLULU	13	1940 E	1954	N17 W22	1942		1-	1	1950	.41	.43		
HONOLULU	13	1946	1952	N13 W25	1950		1-	1	2006	.21	.22		
HONOLULU	13	1946	1954	N15 W28	1946		1-	1	2028	1.65	1.70		
HONOLULU	13	2004	2010	N14 W24	2006		1-	1	2046	.41	.43		
HONOLULU	13	2024	2030	N11 W28	2028		1-	1	2058	.31	.33		
HONOLULU	13	2024	2030	N11 W28	2046		1-	1	2100	.41	.43		
HONOLULU	13	2046 E	2050	N00 E24	2046		1-	1	2218	.31	.33		
HONOLULU	13	2052	2108	N10 E55	2058		1-	1	2314	.41	.43		
HONOLULU	13	2054	2104	N12 W26	2100		1-	1	2338	.31	.55		
HONOLULU	13	2216	2224	N15 W25	2218		1-	1	2346	.52	.54		
HONOLULU	13	2312	2320	S11 W66	2314		1-	1					
HONOLULU	13	2334	2340	S11 W66	2338		1-	1					
HONOLULU	13	2340	2348	N16 W29	2346		1-	1					
KODAIKYNL	14	0015	0100	PATROL	NO FLARE								
TACHKENT	14	0115	0145	PATROL	NO FLARE								
NIZMIR	14	0150	0155	PATROL	NO FLARE								
TACHKENT	14	0200	0225	PATROL	NO FLARE								
TACHKENT	14	0225 E	0245	N09 W34	0228	20 D	1	2	0228	1.90	2.35	2.00	114
NIZMIR	14	0247 E	0330	N09 W35	0522 U	43 D	1	2	0304	2.09	2.60	2.10	115
TACHKENT	14	0522 E	0532	N11 W34	0522		1-	2	0529	.62	.70	1.50	115
NIZMIR	14	0529	0533	N11 W34	0529	85 D	1+	2	0632	7.63	4.50	1.80	122
KODAIKYNL	14	0619 E	0744 D	N03 W00	0636	50 D	1+	2	0632	9.57	10.60	2.00	115
TACHKENT	14	0622 E	0712	N03 E01	0633	61 D	2	2	0647	8.11	6.50		
TACHKENT	14	0624	0725	N02 W01	0633	39 D	2	1	0722	.21	.23		
CAPRI-F	14	0643 F	0722 D	N03 E01	0633	55 D	1+	1	0722	1.50	1.80		20
CRIMEE	14	0643 E	0738 D	N03 E00	0633	35 D	1+	3	2042	3.10	3.70		
ONDREJOV	14	0657 E	0732 D	N00 E01	0633	16	1-	3	2056	1.65	2.00		
HONOLULU	14	2042	2048	N11 W40	2042	58	1-	3	2206	.41	.56		
LOCKHEED	14	2051	2150	N09 W43	2108		1-	1					
HONOLULU	14	2054	2110	N12 W45	2056		1-	1					
HONOLULU	14	2056	2154	N10 W43	2116		1-	1					
HONOLULU	14	2204	2210	N18 W50	2200		1-	1					
VOROSHILOV	15	0042	0053	N11 E31	0046		1-	2	0120	.72	.30		52
LOCKHEED	15	0113	0133	N16 W48	0120		1-	1	0120	.30	.30		10
HONOLULU	15	0116	0124	N16 W44	0120		1-	3	0120	.72	.87		

COMMERCE - STUNGEARS - BULLDOG

## SOLAR FLARES

JUNE 1963

OBSERVATORY	DATE JUNE 1963	OBSERVED UNIVERSAL TIME		LOCATION		IM- POR- TANCE	OBS. COND.	TIME — UT	MEASUREMENTS		MAX. WIDTH H <sub>g</sub>	MAX. INT. °	PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MAGNITUDE PLACE REGION				MEAS. AREA Sq. Deg.	CORE AREA Sq. Deg.			
VOROSHILOV	15	0200	0203	0202	N16 W08	1-	1		.63			53	
	15	0320	0240	NO FLARE	PATROL								
	15	0341 E	0414	0348	N15 W47	1+	2	0346	1.19	1.40	2.50	140	
	15	0430	0500	0434	N10 W47	1+	2	0434	1.37	1.50	2.30	125	
TACHKENT	15	0431	0442 E	0435 D	N11 W47	1+			4.49			110	
	15	0431	0442 E	0435 D	N11 W47	1+							
NEW SCHAUIN	16	0845 E	0849 D	0918	N11 W62	1-			.20	.40			
	16	0912	0940	0918	N07 W30	1-			.80	.90			
	16	1057	1130	1104	N11 W64	1			1.00	2.40			
	16	1156	1259	1211	N11 W64	2			3.00	7.10			
CAPETOWN	16	1156	1259	1238	N11 W64	2							
	16	1156	1259	1238	N11 W64	2							
CRIMEE	16	1157 E	1213 D	1214	N08 W64	1	1	1214	1.34				
	16	1228 E	1235 D		N11 W65	1			1.30	3.00			
HONOLULU	16	1926	1940	1928	N11 W70	1-	3	1928	.72	1.35			
	16	2004	2026	2008	N10 W63	1-	3	2008	.31	.54			
LOCKHFEED	16	2143	2156	2148	N07 W23	1-	2	2148	.30	.30		10	
	16	2146	2154	2148	N08 W22	1-	3	2148	.41	.41			
TACHKENT	17	0200	0220	NO FLARE	PATROL								
	17	0230	0240	NO FLARE	PATROL								
	17	0329	0420	0346	N11 W74	1	2	0348	1.45	5.00	2.30	55	
	17	0343	0355	0345	N10 W75	1-	2	0345	.43	1.70	1.52	100	
CAPETOWN	17	1032	1050	1035	N12 W78	1			.50				
	17	1345	1410		N12 W77	1	2						
LOCARNO	17	1554 E	1413 D		N12 W77	1	2	1554	1.50	4.11			
	17	1554 E	1413 D		N12 W77	1	2	1632	1.80	2.90			
CAPRI-F	17	1632 E	1642 D		N08 W32	1	2						
	17	1632 E	1642 D		N08 W32	1	2						
NEW SCHAUIN	18	0230	0235	NO FLARE	PATROL								
	18	0245	0255	NO FLARE	PATROL								
	18	0754 E	0800 D	0756	N07 W44	1-			.50	.70			
	18	0754	0804	0756	N09 W41	1-	2	0756	1.10	1.50			
CAPRI-F	18	1918 E	1946 D	1928	N09 W90	1-	2	1928	.41	1.44			
	18	1918 E	1946 D	1928	N09 W90	1-	2						
HONOLULU	19	0245	0250	NO FLARE	PATROL								
	20	0115	0220	NO FLARE	PATROL								
	20	0230	0235	NO FLARE	PATROL								
	20	0250	0300	NO FLARE	PATROL								
CAPRI-F	20	0822 E	0838 D		N14 E45	1	2	0822	2.00	2.80			
	20	0822 E	0838 D		N14 E45	1	2						
HONOLULU	21	0030	0040	0034	N12 E41	1-	2	0034	.62	.74			
	21	2355	2400	NO FLARE	PATROL								
CAPRI-F	22	0000	0005	NO FLARE	PATROL								
	22	0130	0155	NO FLARE	PATROL								
	22	0205	0245	NO FLARE	PATROL								
	22	0205	0245	NO FLARE	PATROL								
CAPRI-F	23	0200	0300	NO FLARE	PATROL								
	23	1506 E	1517 D		N14 E02	1-	3	1507	.50	.51			
CAPRI-F	24	0215	0235	NO FLARE	PATROL								
	24	0215	0235	NO FLARE	PATROL								

# SOLAR FLARES

JUNE 1963

OBSERVATORY	DATE JUNE 1963	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX PHASE	APPROX. LAT.	MER- IDIST				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H <sub>g</sub>	MAX INT. %
NEW SCHAUIN CLIMAX HONOLULU LOCKHEED	24	0255	0300	NO FLARE	PATROL									
	25	0210	0230	NO FLARE	PATROL									
	25	0235	0245	NO FLARE	PATROL									
	25	0250	0345	NO FLARE	PATROL									
	25	1452 E	1456 D		N13 E34			1-			.40	.50		
CLIMAX HONOLULU LOCKHEED	25	1654	1700	1656	N10 E36			1-		2032	.60	.70		
	25	2030	2040 D	2032	N10 W63			1-	1	2300	.62	1.02		
	25	2258	2318	2300	N09 E34			1-	1		.30	.30		20
	26	0210	0300	NO FLARE	PATROL									
TACHKENT KODAIKNI ONDREJOV LOCARNO	26	0300 E	0346	0306	N07 W70		46 D	1	2	0305	.62	.80	3.00	130
	26	0307 E	0319		N06 W66			1-	1	0310	.64	1.65	1.80	114
	26	0656	0701		N08 E30			1-	2	0657			1.70	
	26	1213	1225		N12 E30		12	1	3					
CAPRI-F CLIMAX HONOLULU	26	1216	1227 D		N11 E28			1-	3	1217	1.50	1.72		
	26	1218 E	1227	1220	N11 E29			1-			.40	.40		
	26	1814	1818	1816	S04 E46			1-	1	1816	.31	.37		
	27	0128	0132 D	0132	N13 E20			1-	2	0132	1.13	1.13		
HONOLULU LOCKHEED	27	0128	0140	0132	N10 E20			1-	2	0132	.40	.40		
	27	0215	0240	NO FLARE	PATROL									20
	27	1130	1150	1138	N07 W90		20	1+	3	1138			2.00	
CAPETOWN LOCKHEED UCCLE	28	0130	0210	NO FLARE	PATROL		45	1						
	28	1008	1053	1015	N17 W65			1-	2	1015	1.00	2.40		
	28	1611	1619	1614	N15 E40			1-	3	1614	.20	.20		20
	28	1613	1615		N15 E42			1-						
NEW SCHAUIN HONOLULU HONOLULU	28	1714 E	1732		N10 W03			1-			1.00	1.00		
	28	1854	1908	1902	N08 W06			1-	3	1902	1.44	1.44		
	28	1914	1930	1916	N09 W06			1-	3	1916	1.03	1.03		
	28	1926	1934	1928	N11 W57			1-	3	1928	.62	.89		
HONOLULU HONOLULU HONOLULU	28	1940	1948 D	1942	N11 W57			1-	3	1942	.82	1.23		
	28	2012	2044	2031	N11 W57			1-	3	2031	.52	.77		
	28	2050	2058	2052	N11 W57			1-	3	2052	1.03	1.54		
	28	2100	2110	2102	N12 W58		10	1	3	2102	1.44	2.16		
HONOLULU HONOLULU HONOLULU	28	2154	2158 D	2156	N12 W57			1-	3	2156	1.03	1.55		
	29	0032	0040	0034	N12 W57			1-	3	0034	.52	.77		
	29	0043	0045 D	0044	N12 W57			1-	3	0044	.31	.46		
	29	1205	1221	1208 U	N11 W66		16	1	3	1208	1.20	2.90		
CAPETOWN HONOLULU HONOLULU	29	1740	1744 D	1744	N12 W69		4 D	1	1	1744	1.13	2.10		
	29	1818	1826 D	1824	N12 W69			1-	2	1824	.41	.76		
	29	1819	1841	1828	N13 W67			1-	2		.10	.20		
	29	1834 E	1842	1834	N12 W69			1-	2	1834	.93	1.72		
CLIMAX HONOLULU HONOLULU	29	1848	1900	1850	N12 W69			1-	2	1850	.62	1.14		
	29	1912	1918 D	1914	N12 W69			1-	2	1914	.41	.76		
	29	1912 E	1920	1914	N12 W21			1-	2	1914	.31	.31		
	29	2026	2026	2022	N12 E22			1-	2	2022	.51	.51		
HONOLULU HONOLULU	29	2340	2346	2340	N16 E22			1-	2	2340	1.13	1.13		
	30	0036	0056	0046	N12 W70		20	1	2	0046	1.44	2.88		

## SOLAR FLARES

JUNE 1963

OBSERVATORY	DATE JUNE 1963	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION -- MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MC-MATH PLACE REGION				TIME -- U T	MEAS AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH Ha	MAX INT. %
CLIMAX	30	0039	0052	N11	W70			1-			*30	*60		
	30	0245	0250	NO FLARE	PATROL									

COMET - STARDUST - BOULDER

These flare reports are addenda to the June 1963 flare published in CRPL-F 227 B for July 1963.

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH,
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPETOWN	ROYAL OBSERVATORY,	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNAYA PAKHRA, USSR
	CAPE OF GOOD HOPE	KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX. USA
CAPRI F	CAPRI, ITALY (GERMAN)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJÖBADEN	STOCKHOLM, SWEDEN
CAPRI S	CAPRI, ITALY (SWEDISH)	MC-MATH	MC-MATH-HULBERT	SCHAUINS	SCHAUINSLAND, GFR
CRIMÉE	SIMEIZ, USSR		PONTIAC, MICH., USA	TACHKENT	TASHKENT, USSR
HERSTMONEU	ROYAL GREENWICH OBSERVATORY,	MOSCOU	MOSCOM-GAISH, USSR	WENDEL	WENDELSTEIN, GFR
	HERSTMONEUX, ENGLAND				
HTÉ-PROVEN	HAUTE-PROVENCE		NEW SCHAUM FREIBURG, GFR		

ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

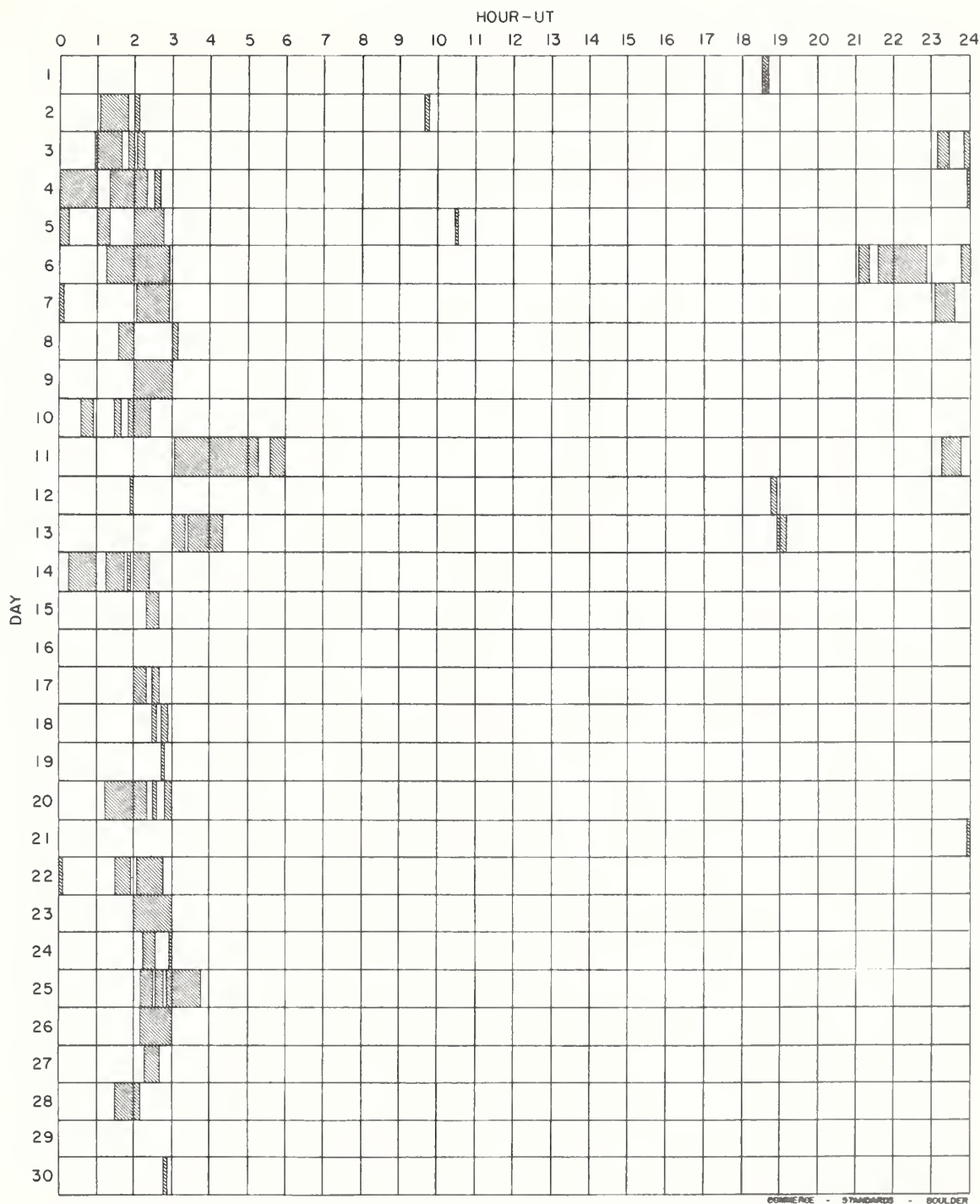
SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

# INTERVALS OF NO FLARE PATROL OBSERVATIONS

IIIu

JUNE 1963



Observatories Include:

Abastumani	Capetown	Haute-Provence	Istanbul	Mitaka	Tachkent
Arcetri	Capri-F (German)	Herstmonceux	Kiev KO	Moscou	Uccle
Athènes	Capri-S (Swedish)	Honolulu	Kodaikanal	Ondrejov	Voroshilov
Bakou	Climax	Huancayo	Lockheed	Ottawa	
Bucharest	Crimee	Ikomasan	McMath-Hulbert	Sacramento Peak	



IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS  
SUDDEN COSMIC NOISE ABSORPTION  
SUDDEN ENHANCEMENTS OF ATMOSPHERICS  
SUDDEN PHASE ANOMALIES  
SOLAR NOISE BURSTS AT 18 Mc

AUGUST 1963

AUG 1963	UNIVERSAL TIME			SWF TYPE	IMPORTANCE					WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	BUR			
06	0859	0936		S 1+						1	DA	0855
*E	09 2234	2340		SL 1+			1			4	WS AN	2234
	09 2236	0029								5	HA BO	
	09 2236	2300							2	5	HA BO	
	09 2236	2327	2259		10	1				1	BO	
E	11 1038	1148					1			1	JU	1000E
	11 1038	1210							X	1	KU	
	11 1044	1145		S 1+						3	DA JU	
	11 1958	2005							2	5	HA BO	
	12 0101	0103							1	5	MA HA	1540
*E	17 1604	1730	1615				2+			5	LO BO RO A1 A3 A15 A16	
	17 1608	1700U						65		5	BO	
	17 1609	1640		S 2						5	BE FM HU MC NE WS	
	17 1610	1613							1	1	BO	
E	17 1611	1631	1614		25	1				5	RO BO	2257
	17 2258	2318		S 1+						4	TO AD	
	17 2300	2320	2304		30	1				5	HA BO	
*E	18 1759	1832	1801		20	1				1	BO	1752
	18 1800	1825		S 2						5	MC BE FM HU NE WS	
	18 1800	1845					2			5	BO A1 A3 DU	
	18 1800	1900						40		5	BO	
21	2034	2037							2	5	BO HA	2035
	21 2037	2040							2	5	BO HA	
	21 2131	2219							2	1	BO	

LO = Preston, England  
SES observed by A1, A5 and A14

COMMERCE - STANDARDS - BOULDER

Addenda to July, 1963 Table:

04	0736	0747	0738		35	2				5	RO MA	0734
04	0737	0811			35		1			5	RO MA	
09	1823	1826							1	4	MC BO	2127
09	2105	2109							1	4	BO MC	
12	1746	1749							1	4	MC BO	
13	0035	0039							2	5	MA HA	
29	2144	2148							1	5	HA MC BO	

COMMERCE - STANDARDS - BOULDER



SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES  
SEPTEMBER 1963

IVa

ARO - OTTAWA

2800 Mc.

Sep. 1963	TYPE	START UT	DURATION HRS MIN		MAXIMUM			REMARKS
					TIME UT	PEAK FLUX	MEAN FLUX	
4	3 Simple 3	1700		35	1715	1.5	0.9	
4	3 Simple 3	1845	2	00	Indet.	1.5	0.8	
8	1 Simple 1	1915		10	1918.5	2	1	
12	1 Simple 1	1823		1	1823.5	1	0.5	
12	1 Simple 1	2024		3	2025	4	2	
13	1 Simple 1	1657.5		2.5	1658.2	2	1	
13	3 Simple 3	1723	1	45	Indet.	2	1	
14	1 Simple 1	1544.5		3	1546	3	1.5	
14	3 Simple 3	1644		25	1645	2	1	
14	3 Simple 3 A f	1855	>3	45	Indet.	9	--	
	1 Simple 1	1901.8		1.2	1902	5	2.5	
	1 Simple 1 f	1903		1	1903.7	2	1	
	7 Period of irregular activity	2106.5		27.5	2134	8	2.5	
	9 Precursor	2134		9		24	14	
	2 Simple 2 f	2143		7	2144.5	550	130	
	4 Post Increase			8		5	2.5	
	6 Complex f	2229.5		10.5	2235	180	80	
15	3 Simple 3	1305		45	1325	3	2	
15	3 Simple 3 A	2017	1	13	2031	9	4.5	
	1 Simple 1	2017		1	2017.5	6	3	
16	2 Simple 2 f	1301.5		1.5	1302	13	7	
16	2 Simple 2 f	1303		6	1305	235	115	
	4 Post Increase A f		9	00		10	5	
	2 Simple 2 f	1311		3	1312	84	28	
	1 Simple 1 f	1318		3	1319	3	1.8	
	1 Simple 1	1408		1.5	1408.5	4	2	
	9 Precursor	1428		8.5		14	7	
	6 Complex f	1436.5	2	13.5	1543	710	145	
	4 Post Increase		3	40		28	14	
17	1 Simple 1	1237		0.7	1237.3	4	2	
17	1 Simple 1	1310.3		0.3	1310.5	1.5	0.7	
17	3 Simple 3	1552		34	1605	1.5	1	
17	3 Simple 3 A f	1718	1	44	1833	3.5	1.7	
	1 Simple 1 f	1816.5		20.5	1820	5	2.5	
17	3 Simple 3 A f	1902	2	01	2017	8	4	
	2 Simple 2	1920		16	1925	8	4	
18	3 Simple 3 A	1353	2	00	1438	8	4	
	1 Simple 1 f	1358		3	1358.5	3	1.5	
	2 Simple 2	1414		3.5	1415	13	7.5	
	4 Post Increase			17.5		4	2	
18	3 Simple 3 A f	1701		19	1708	1.5	0.7	
	1 Simple 1 f	1705.8		1.2	1706.3	5	3	
	1 Simple 1	1707		1	1707.3	5	2	
18	3 Simple 3 A f	1845	3	45	2145	6	--	
	1 Simple 1 f	1917		3	1918.3	4.5	2.2	
	1 Simple 1 f	1932		1.2	1933	7	4	
19	3 Simple 3 A	1302	2	13	Indet.	2.5	1.2	
	1 Simple 1 f	1326		2	1327.3	1.5	1	
19	3 Simple 3	1517	2	00	1647	2.5	1.7	
19	1 Simple 1	1758.8		0.7	1759	3.5	1.7	
19*								

COMMERCE - STANDARDS - BOULDER

# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

SEPTEMBER 1963

ARO - OTTAWA

2800 Mc.

Sep. 1963	TYPE	START UT	DURATION HRS MIN		MAXIMUM			REMARKS
					TIME UT	PEAK FLUX	MEAN FLUX	
20	1 Simple 1	1151		4	1153.7	3	1.5	
20	3 Simple 3 A f	1618	3	02	1815	6.5	3.2	
	7 Period of irregular activity	1702		11.5	1703	25	4	
	1 Simple 1	1733.5		1.5	1734	2.5	1.2	
20	3 Simple 3	2057	1	23	2135	4.5	3	
21	3 Simple 3 A	1613	3	47	Indet.	2.5	1.2	
	1 Simple 1	1804.5		1.8	1805.5	1.4	0.7	
	3 Simple 3	1808		19	1812	4	2	
	2 Simple 2	1835.5		2.5	1836.7	15	7	
	1 Simple 1	1903.5		2	1904	2.5	1.2	
22	3 Simple 3	1217		43	1224	5	2	
22	3 Simple 3 A	1845	2	00	1912	4	2	
	3 Simple 3	2002		17	2009	3	1.5	
24	3 Simple 3 f	1436	1	14	1447	7	3.5	
24	1 Simple 1	1925.2		3.5	1927	1.5	0.7	
25	1 Simple 1	1306		6	1309	1.4	0.7	
25	1 Simple 1	1841.5		1.5	1842	2.2	1.1	
28	1 Simple 1	1914		6	1915.5	2	1	

COMMERCE - STANDARDS - BOULDER

\* During the period 20:08 UT to 21:30 UT there were six small events recorded of short duration and with peak flux no greater than 4 units.

## HOURS OF OBSERVATION, JULY, AUGUST, SEPTEMBER, 1963

### OBSERVING PERIOD:

July 11:00 UT - 24:00 UT (approx)  
 August 11:00 UT - 23:30 UT (approx)  
 September 11:30 UT - 22:40 UT (approx)

### With the following exceptions:

Interruption of observations, approximately 20 minutes in duration, in the periods 15:00 - 16:00 UT and/or 20:00 - 21:00 UT, on the following days:

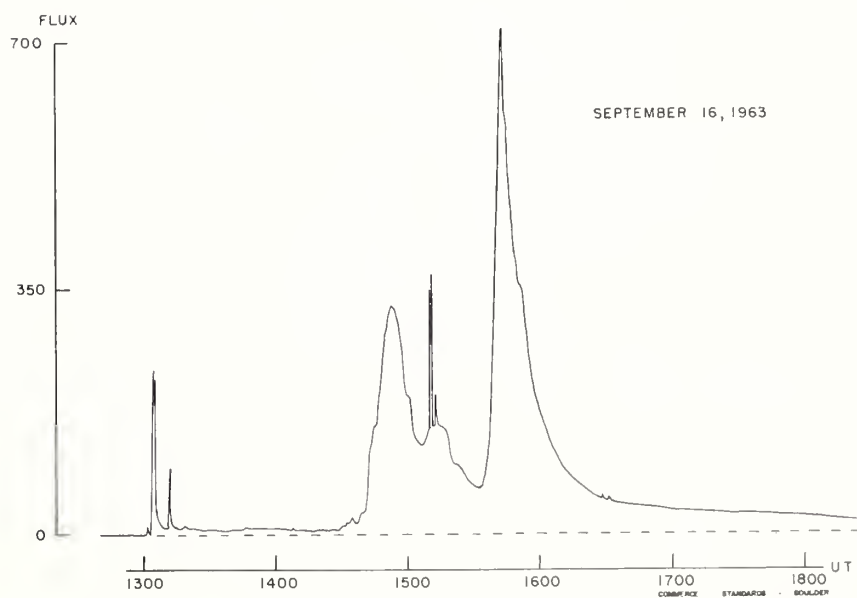
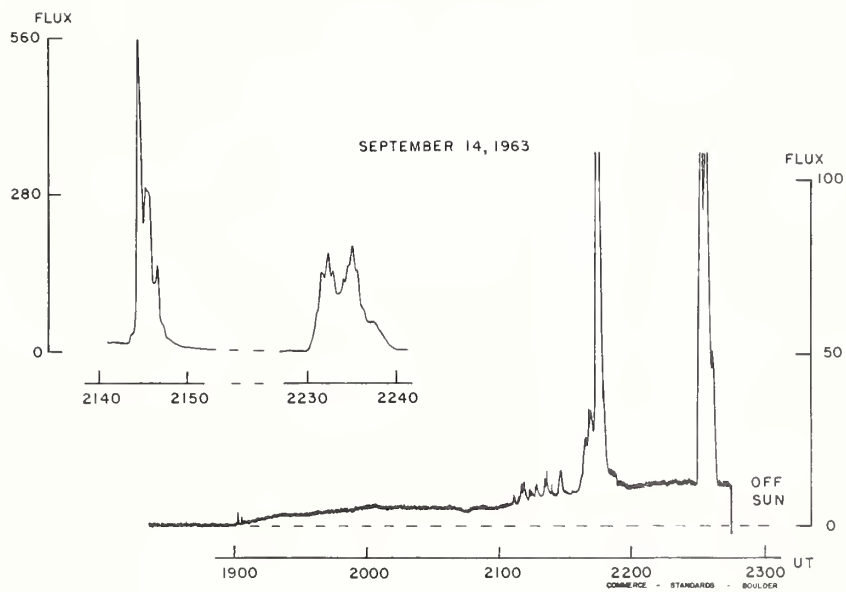
July 12 to 15  
 17 to 21  
 27 to 31

Aug. 1 to 30

Sept. 6

# SELECTED 2800 MC S SOLAR NOISE BURSTS OTTAWA, CANADA

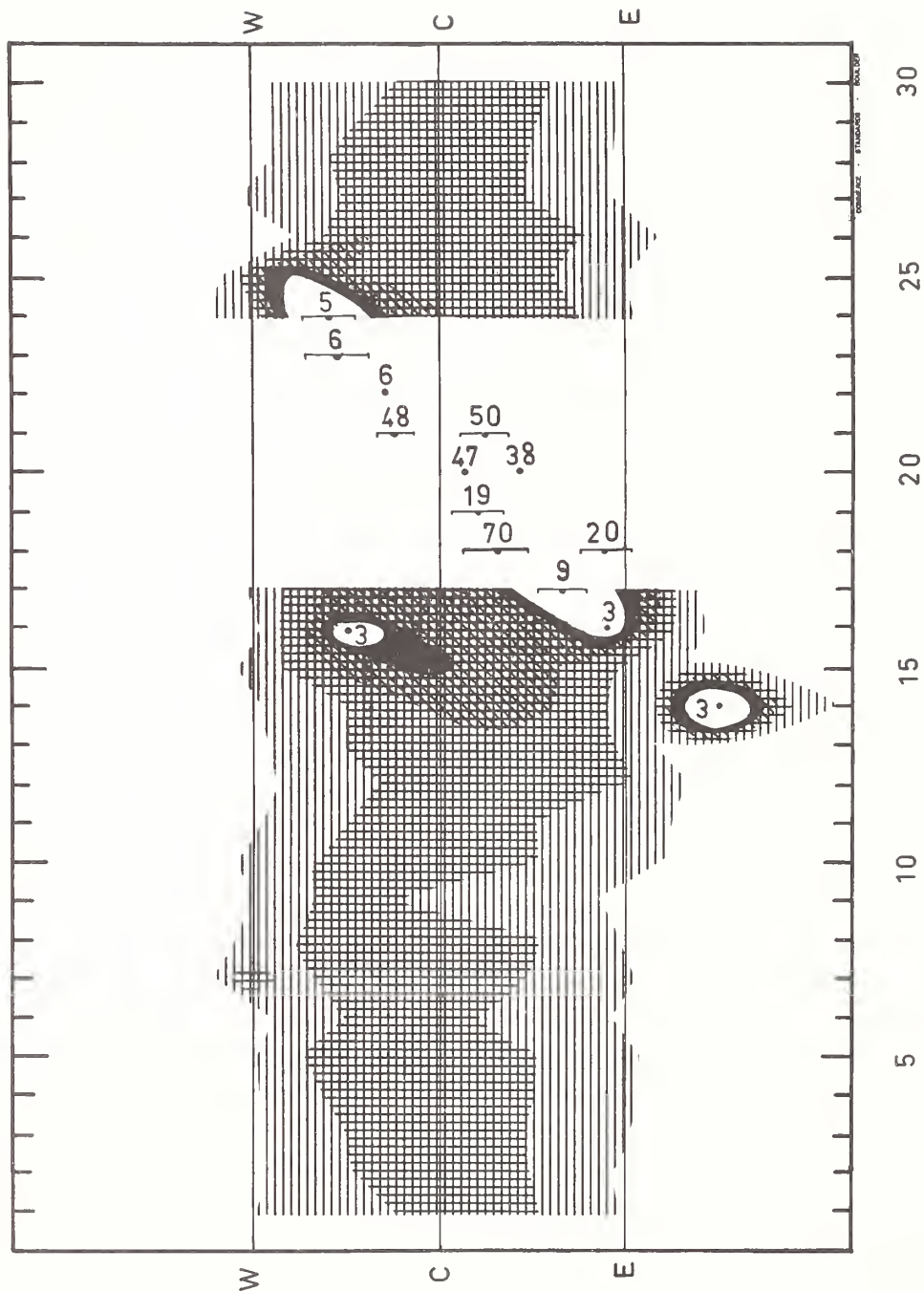
IVc



SEPTEMBER 1963

NANÇAY

169 Mc.



SEPTEMBER 1963

SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES  
SEPTEMBER 1963

IVe

NBS BOULDER

108 Mc.

Sep. 1963	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
14	7	1933	2110	192	2
15	9 A	0027	0027	3	3
15	9 B	0031	0035	25	3
16	6	1247 E		280 D	2
16	9	1434	1450	~ 70	2
16	7	2015		278 D	1
17	1	1429	1517	48	2
17	7	1915	~ 2400	335 D	2
18	6	1248 E		721 D	3
19	6	1249 E		719 D	2
20	6	1250 E		716 D	3
21	6	1251 E		713 D	3

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

NBS BOULDER

108 Mc.

Sep. 1963	HOURS OF OBSERVATION	UT	Sep. 1963	HOURS OF OBSERVATION	UT
1	1232-0116		16	1247-0053	
2	1233-0114		17	1247-0051	
3	1234-0112		18	1248-0049	
4	1235-1653; 2036-0110		19	1249-0048	
5	1236-0110		20	1250-0046	
6	1237-0108		21	1251-0044	
7	1238-0106	I 1238-1515 (1)	22	1252-0043	
8	1239-0105	I 2115-0105 (1)	23	1253-2008; 2105-0041	
9	1240-0104	I 2115-2250; (1)	24	-- --	
		2330-2400 (1)	25	1815-0038	
10	1241-0103	I 1930-2027; (1)	26	1256-0036	
		2135-2405 (1)	27	1257-0034	
11	1242-0101	I 1925-2305 (1)	28	1258-0033	
12	1243-0059	I 1906-1933; (1)	29	1259-0031	
		2018-2257 (1)	30	1300-0030	
13	1244-0058	I 2248-2325 (1)			
14	1245-0056				
15	1246-0054				

COMMERCE - STANDARDS - BOULDER

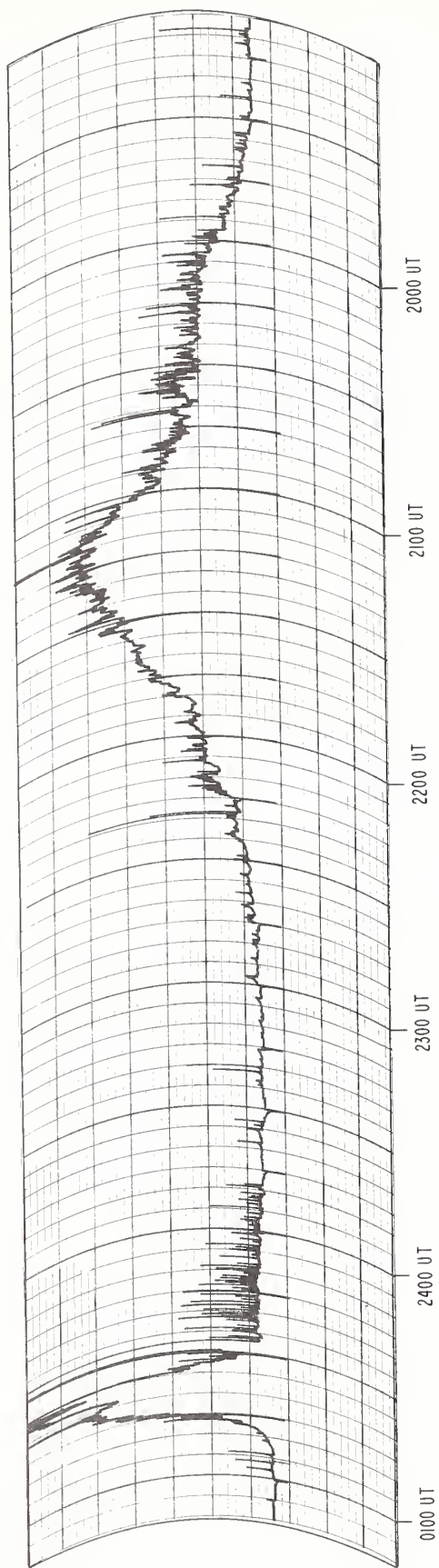
(1) Atmospherics

## SOLAR RADIO EMISSION

SEPTEMBER 14, 1963

108 Mc.

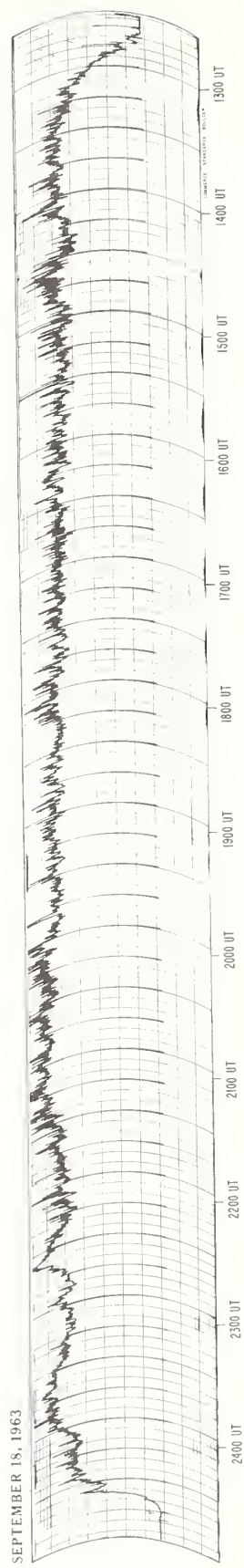
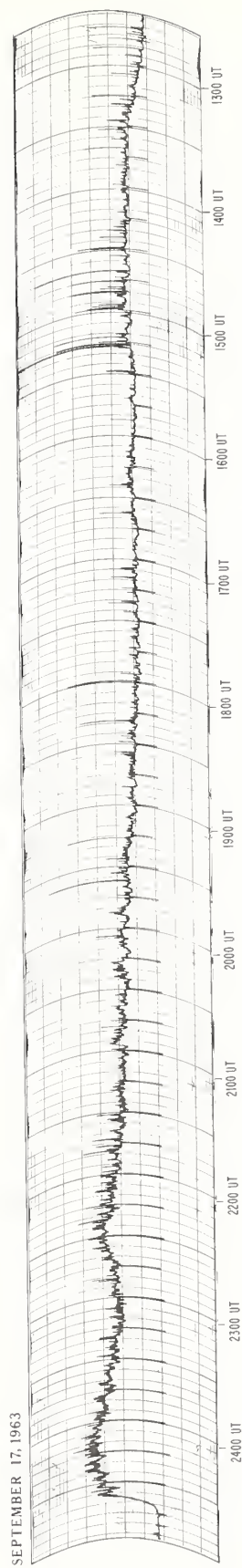
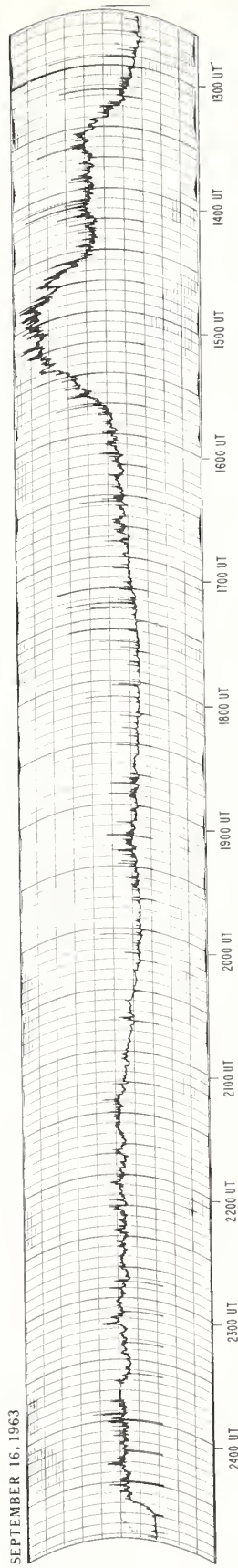
BOULDER



SOLAR NOISE BURSTS  
SEPTEMBER 16, 17, 18, 1963

108 MC.

BOULDER





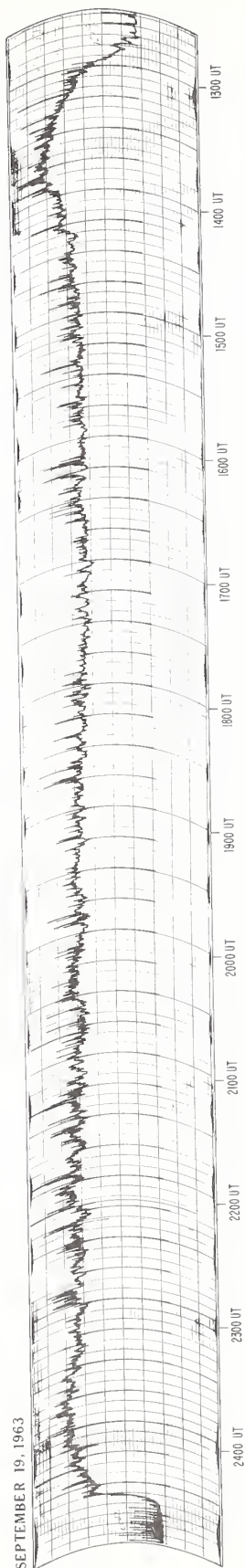
# SOLAR NOISE BURSTS

SEPTEMBER 19, 20, 21, 1963

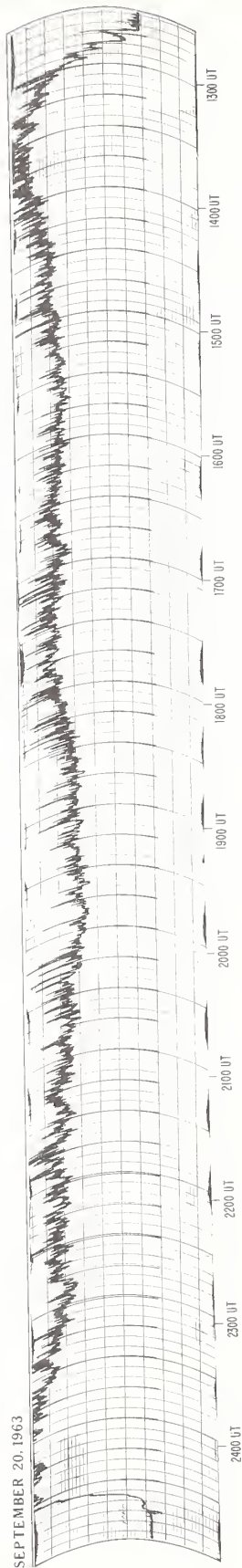
108 MC.

BOULDER

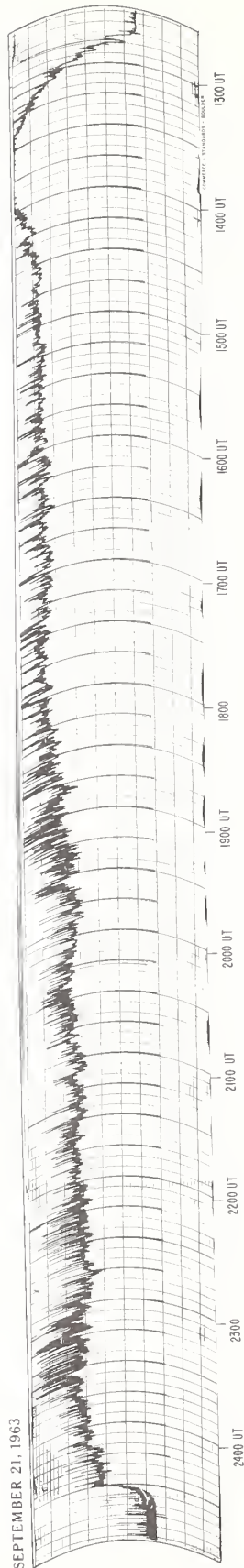
SEPTEMBER 19, 1963



SEPTEMBER 20, 1963



SEPTEMBER 21, 1963





SOLAR RADIO EMISSION  
SPECTRAL OBSERVATIONS

IVi

JULY 1963

Fort Davis

50-320 Mc.

1963 <small>JULY - 1963</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U. T.	INT		
July 1	1233-2230					
July 2	1233-2230					
July 3	1233-2230					
July 4	1233-2230					
July 5	1233-2235					
July 6	1233-2230					
July 7	1233-2230					
July 8	1233-2230					
July 9	1233-2230					
July 10	1233-2230					
July 11	1233-2245					
July 12	1233-2230					
July 13	1233-2230					
July 14	1233-2230					
July 15	1232-2236					
July 16	1233-2230					
July 17	1232-2230					
July 18	1233-2232					
July 19	1233-2230					
July 20	1233-2230					
July 21	1232-2230					
July 22	1233-2230					
July 23	1233-2230					
July 24	1233-2231					
July 25	1233-2234					
July 26	1233-2230					
July 27	1232-2230					
July 28	1234-2230					
July 29	1233-2230	III G	195 153	2	230-160	
July 30	1235-2230					
July 31	1233-2230					Weak I during day.

IVj

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

AUGUST 1963

Fort Davis

50-320 Mc.

1963 <small>USE OTHER YEAR IF</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U. T	INT		
Aug. 1	1301-2300					
Aug. 2	1301-2300					
Aug. 3	1301-2300					
Aug. 4	1301-2300					Weak I during day
Aug. 5	1300-2300					
Aug. 6	1301-2300					1350-1605: Many weak Type III 75-<50 Mc/s Weak I during day.
Aug. 7	1301-2300					Weak I throughout day
Aug. 8	1301-2300					2214: Type V
Aug. 9	1301-2300					Weak I during day
Aug. 10	1301-2300					
Aug. 11	1301-2300					1958: Type V
Aug. 12	1301-2300					
Aug. 13	1300-2300					
Aug. 14	1300-2300					
Aug. 15	1300-2300					
Aug. 16	1300-2300					
Aug. 17	1558-2300	IIIG II	1609-1611 1611.5-1616	3 2	320-<50 240-<50	1610: Type V
Aug. 18	1300-2300					
Aug. 19	1301-2300					
Aug. 20	1301-2300					
Aug. 21	1300-2300	IIIG IIIG	1425-1426 2038-2040	1 2	240-110 300-<50	2038-2040: IIIG burst has broken structure
Aug. 22	1300-2300					
Aug. 23	1300-2300					
Aug. 24	1301-2300					
Aug. 25	1301-2300					
Aug. 26	1301-2300					
Aug. 27	1301-2300					
Aug. 28	1302-2300					
Aug. 29	1302-2300					
Aug. 30	1301-2300					
Aug. 31	1301-2300					

COMMERCE - STANDARDS - BOULDER

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVk

SEPTEMBER 1963

Fort Davis

50-320 Mc

196 3 <small>USCARS NET ID</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U.T	INT		
Sept. 1	1333-2400					
Sept. 2	1330-2400					
Sept. 3	1331-2300					
Sept. 4	1333-2330					
Sept. 5	1332-2330					
Sept. 6	1332-2300					
Sept. 7	1331-2330					
Sept. 8	1332-2330	I	1927-1932	2	75-<50	
Sept. 9	1332-2330					
Sept. 10	1332-2330					
Sept. 11	1332-2330					
Sept. 12	1332-2330					
Sept. 13	1332-2330					
Sept. 14	1332-2330	I	~ 2100-~2140	2	200-<50	Weak I throughout day
Sept. 15	1332-2330					Weak I during day
Sept. 16	1332-2330	I IIIG	~ 1400-~1540 1510-1512	2 3	280-<50 200-<50	Weak I throughout day 1510: Type V
Sept. 17	1332-2330	IIIG IIIG	1449-1452 1515-1517	2 3	300-<50 320-<50	Type I during day
Sept. 18	1333-2330	I	1333-2330	2	280-<50	
Sept. 19	1332-2330	I IIIG	1332-2330 2119-2121	2 3	300-<50 200-<50	2120: Type V
Sept. 20	1332-2330	I IIIG IIIG IIIG IIIG IIIG IIIG	1332-2330 1523-1524 1654-1655 1702-1704 1706-1712 2010-2012 2321-2323	1-2 2 2 2 3 3 3	280-<50 280-125 290-100 320-<50 320-<50 240-<50 280-<50	1500: Type V (with IIIG)  1709-1724: Drifting Structure in Type I burst
Sept. 21	1332-2330	I IIIG IIIG IIIG	1332-2330 1805-1806 1903-1906 2214-2215	2 3 3 3	240-<50 300-<50 300-<50 280-<50	
Sept. 22	1332-2330					Weak I during day
Sept. 23	1332-2330					Weak I throughout day
Sept. 24	1332-2330					Weak I during day
Sept. 25	1332-2330	IIIG	1841-1843	3	125-<50	
Sept. 26	1333-2330					
Sept. 27	1332-2330					
Sept. 28	1332-2330					
Sept. 29	1332-2330					
Sept. 30	1332-2330					

CONCORDANCE - STANDARD - BOLDEN

# SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

SEPTEMBER 1963

HAO BOULDER

7.6- 41 Mc.

Date 1963	Bursts			Frequency Range (mc)	Date 1963	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
4 Sep	III	2139.15-2140	2	15-41	22 Sep	continuum	b1313-a2445	2	18-41
	III	2346.45-2347.15	1	21-41	23	continuum	b1322-a2420	1+	16-41
8	III	1922-1922.30	1	22-41	24	continuum	b1405-a2420	1	19-41
	continuum	1922-1938.30	2	17-41	25	continuum	b1339-a2357	1-	19-41
	IV	1938.30-2025	1-	20-41		III	1343.45-1344	1	18-41
10	III	2012.45-2013	1-	20-35		III	1344.15-1344.45	1	18-41
	III	1853.45-1854	1-	21-41		III	1347.15-1347.30	1	12-41
12	III	1416-1416.15	1-	29-41		III	1348-1349	1+	16-41
13	III	1916-1916.15	1-	20-33		III	1415-1416.15	2	12-41
	III	1931-1931.15	1-	23-41		III	1416.45-1418.15	2	18-41
14	III	2147.30-2147.45	1-	20-35		III	1512-1512.15	1	22-41
	III	1605.45-1606	1-	23-41		III	1520-1521	1+	17-41
	III	1707.45-1708.15	1	20-41		III	1523.30-1524	1	21-41
	III	1811-1811.15	1-	23-41		III	1534.45-1535.45	1+	19-41
	III	1821-1821.30	1-	17-41		III	1538.30-1539.15	1	21-41
	III	1906.30-1906.45	1-	23-38		III	1540.30-1541.15	1	20-41
15	III	2005.45-2006	1-	22-41		III	1546.30-1547	1	20-41
	continuum	2007-2353	3	14-41		III	1559.15-1601.15	1	19-41
	III	2342.15-2342.45	1	22-41		III	1604.45-1605.15	1+	20-41
	III	2424-2425	1+	26-41		III	1608-1608.45	1	16-41
	II	2427-2449	2	12-41		III	1643-1645.15	1+	7-41
16	III	1912-1912.15	1-	30-41		III	1729.30-1731.15	1+	12-41
	III	2017.15-2017.30	1-	30-41		III	1841.30-1843	2	7-41
	III	2116.30-2116.45	1-	22-38		III	1925-1925.30	1	18-41
	III	2136.30-2136.45	1-	29-41		III	2025.30-2026	1	20-41
	III	2145.15-2145.30	1-	26-36		III	2038.45-2039	1	21-41
17	III	2240.15-2240.30	1-	22-41		III	2040.45-2041.15	1	18-41
	continuum	b1352-1640	2	18-41		III	2131.30-2133.30	2	7-41
	III	1510-1512.30	3	16-41		III	2201.30-2201.45	1	20-41
	continuum	1640-a2445	1	19-41		III	2216-2219.15	1+	19-41
18	III	1902.45-1903.15	1+	22-41		III	2222.45-2223	1	18-41
	continuum	b1527-a2433	2	20-41		III	2302.45-2303.45	1	21-41
	III	1748.15-1749	3	7-41		III	2307.45-2309.15	1+	19-41
19	continuum	b1512-2230	2	18-41		III	2343-2344.30	1	18-41
	continuum	2230-a2455	3	18-41					
20	continuum	b1350-a2430	2	18-41					
	continuum	b1530-2403	2	20-41					
	II	2403-2415	3	15-41					
21	IV	2410-a2455	3	23-41					
	continuum	b1318-a2437	2	18-41					

COMBEE - STANBARD - BOULDER

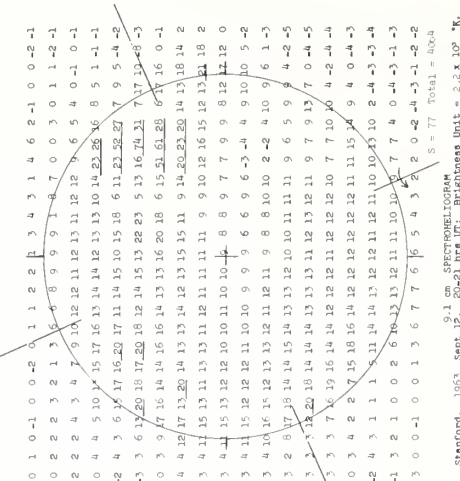
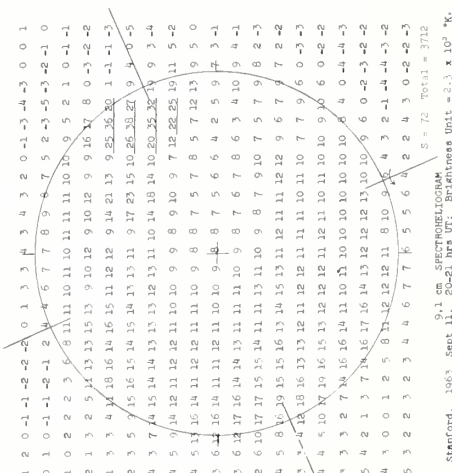
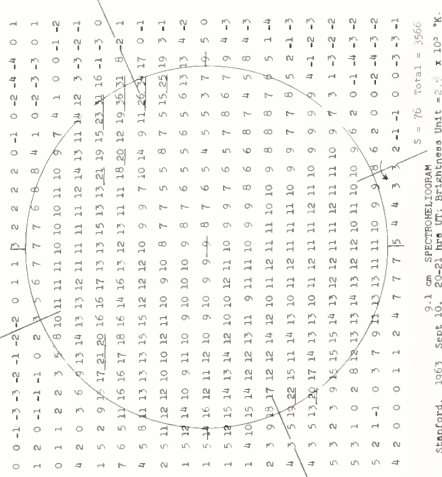
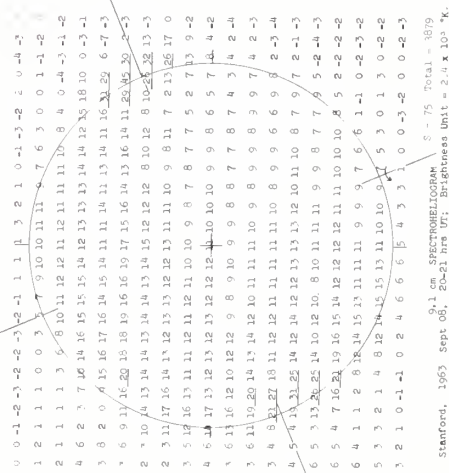
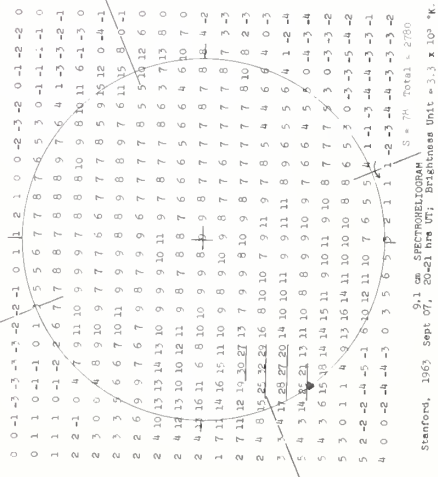


## SOLAR RADIO EMISSION SPECTROHELIOGRAMS

SEPTEMBER 1963

STANFORD

9.1 cm

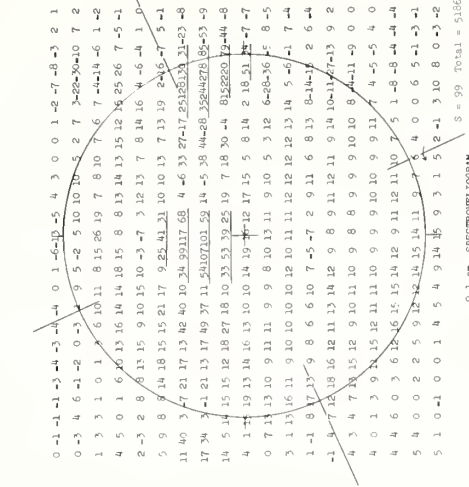
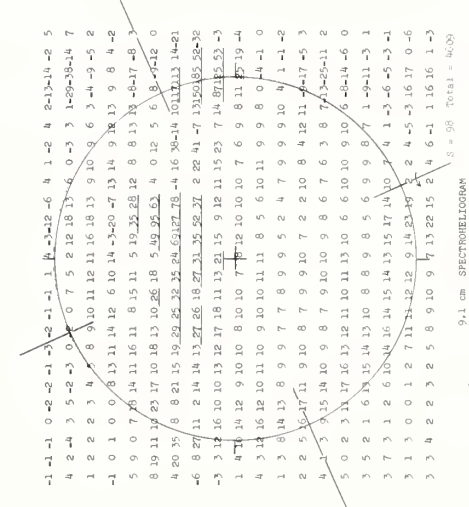
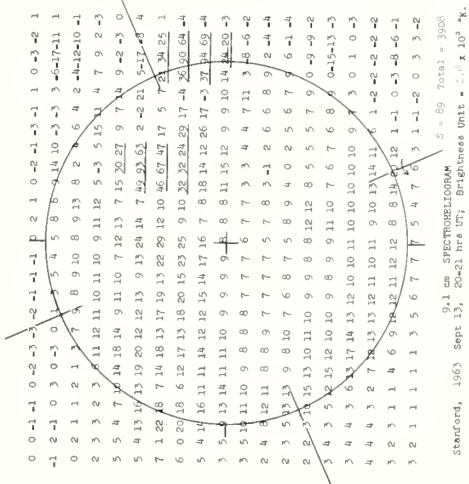


COMMERCIAL STANDARDS - REDUCED

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

SEPTEMBER 1963

STANFORD



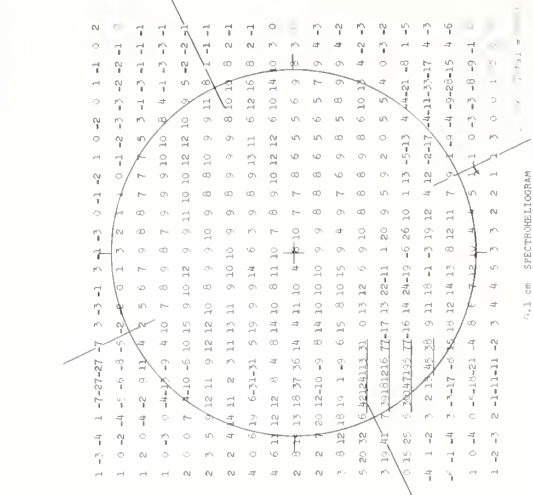
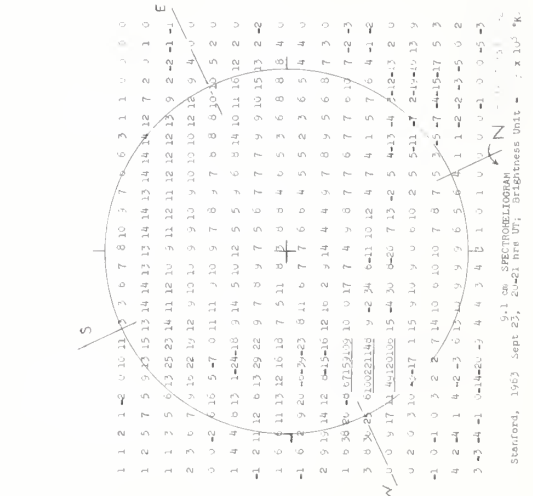
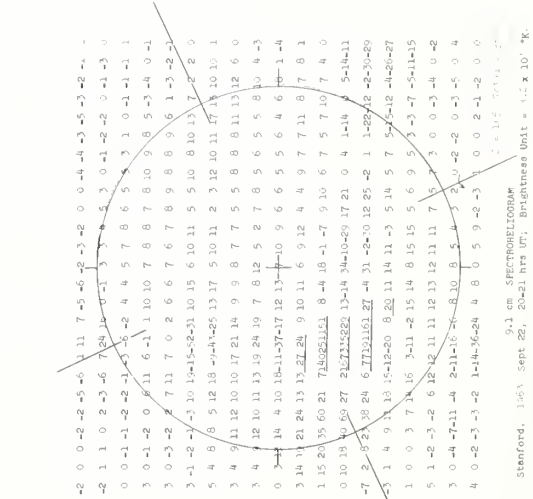
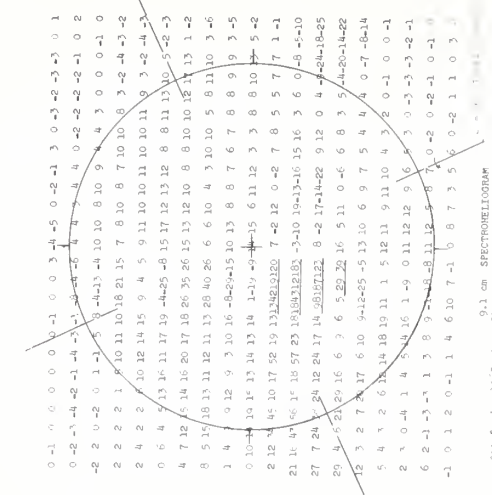
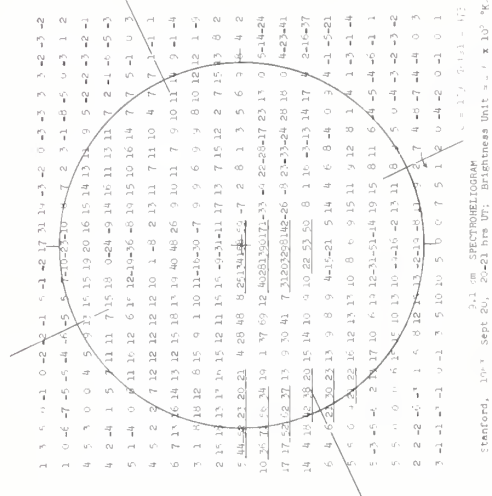
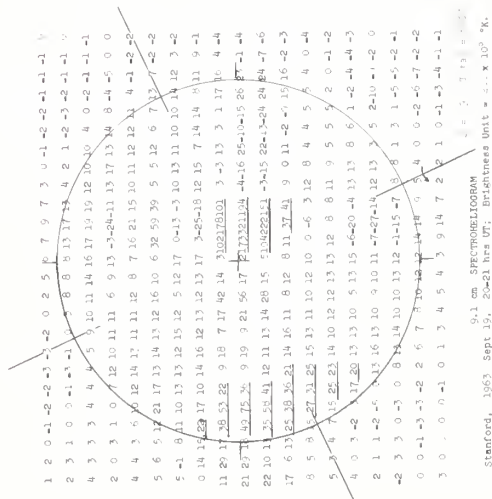


## SOLAR RADIO EMISSION SPECTROHELIOGRAMS

SEPTEMBER 1963

## STANFORD

9.1 cm







## COSMIC RAY INDICES

(Climax Neutron Monitor)

IGC Station B 305

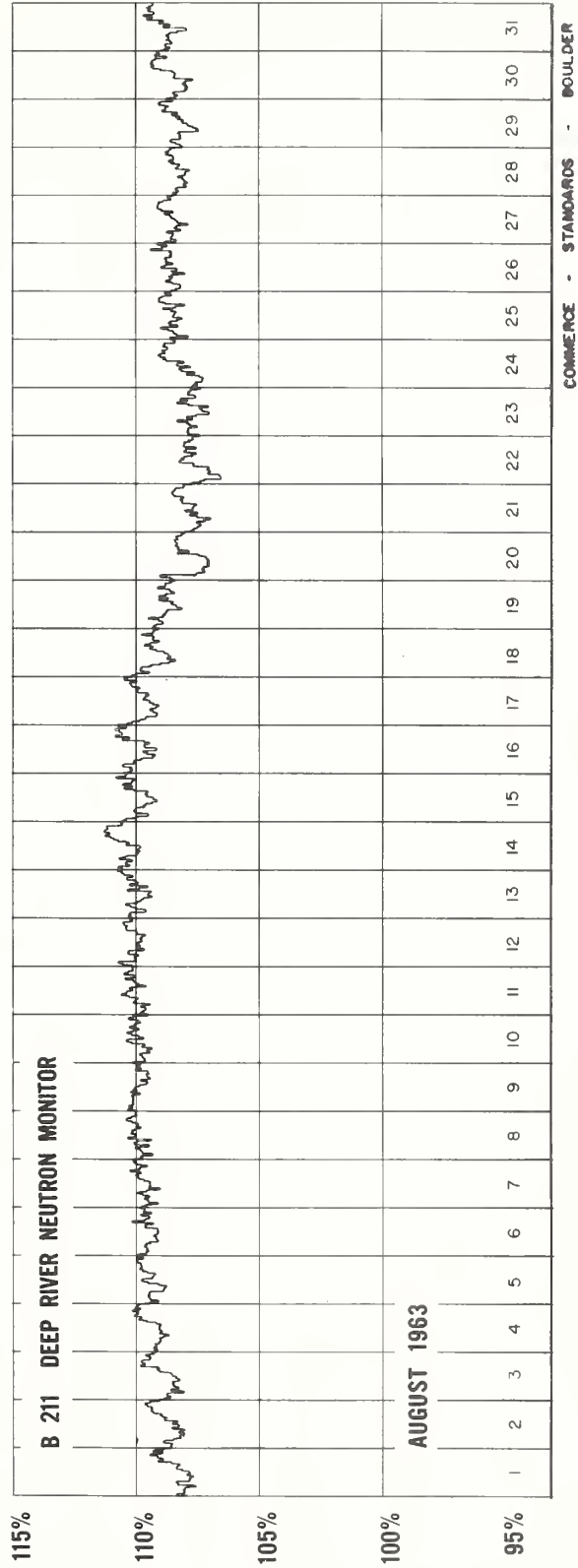
AUGUST 1963

Aug. 1963	Daily average counts/hr*	Aug. 1963	Daily average counts/hr*
1	3150.0	16	3197.4
2	3159.0	17	3189.1
3	3167.0	18	3179.6
4	3177.3	19	3179.2
5	3156.0	20	3171.6
6	3191.4	21	3153.5
7	3195.5	22	3143.2
8	3191.9	23	3140.7
9	3192.9	24	3137.8
10	3189.0	25	3144.3
11	3192.2	26	3149.9
12	3190.1	27	3153.2
13	3193.8	28	3155.8
14	3204.0	29	3157.5
15	3187.7	30	3168.3
		31	3174.7

COMMERCE - STANDARDS - BOULDER

\*Scaling Factor 128

**COSMIC RAY INDICES**  
(Pressure Corrected Hourly Totals)

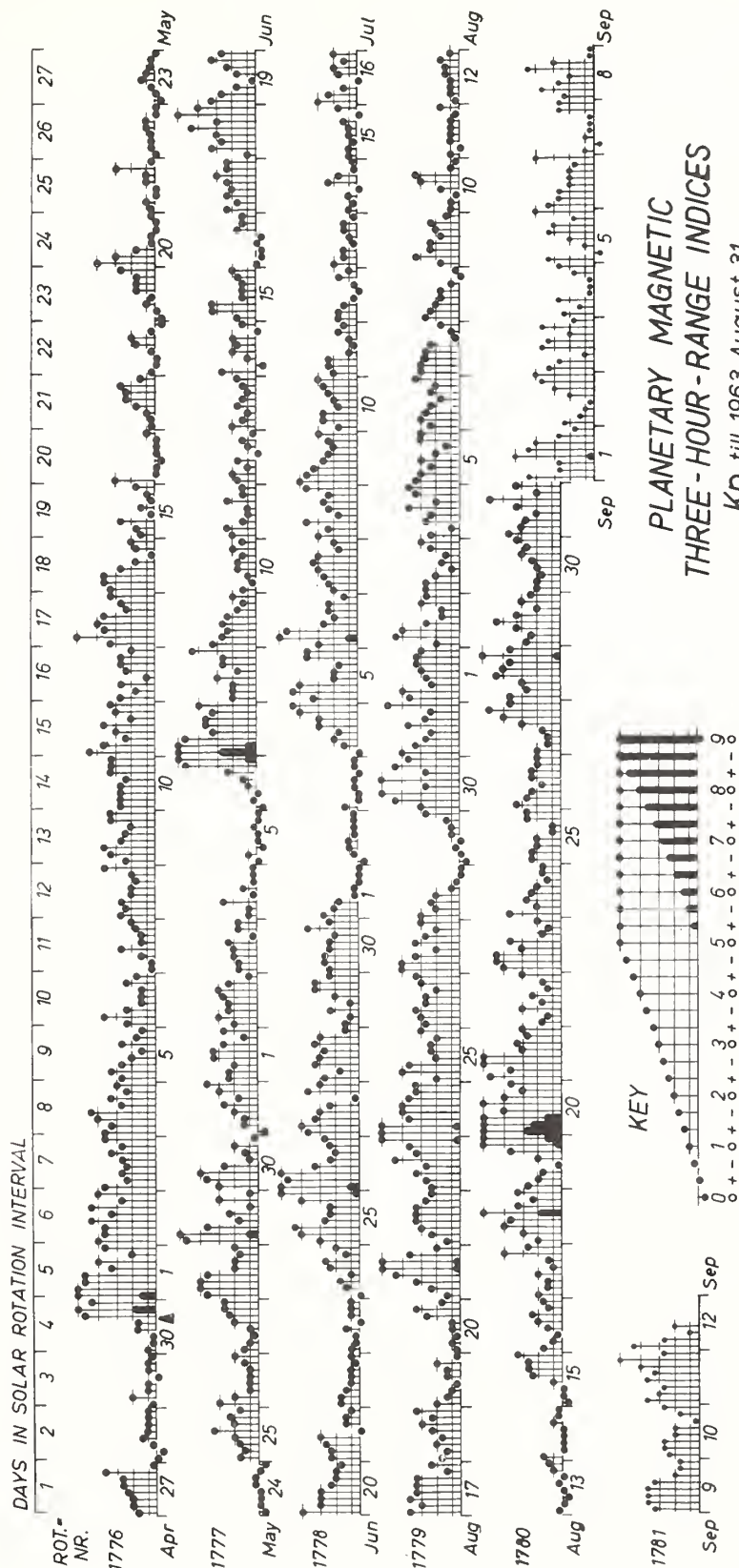


COMMERCE - STANDARDS - BOULDER

## GEOMAGNETIC ACTIVITY INDICES

AUGUST 1963

Aug. 1963	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	1.1	4-	4o	2+	3-	3o	3+	3+	3o	25+	17	Five Quiet	
2	0.9	2o	4+	4o	3-	2-	2-	3o	3-	22o	15		
3	0.5	3-	3-	2o	1o	2-	1+	2+	3o	17-	9		
4	0.8	2+	1o	3-	2+	4-	2o	3+	4-	21o	13		11
5	0.8	3+	3o	2+	3o	2o	1+	3o	3o	21o	12		12
6	0.7	2+	3o	3-	2+	2-	2+	2o	3+	20-	11		13
7	0.6	3o	3o	3-	3-	2+	1-	1o	2-	17o	10		14
8	0.3	3-	2+	2o	2-	2-	1o	0+	1-	12+	6		16
9	0.6	2-	3+	2+	2+	2-	2o	2+	1+	17o	9		
10	0.5	1o	1o	1-	2-	3o	3+	1o	1-	12+	7		
11	0.2	1o	0+	1o	1o	1o	1o	1-	2-	8-	4	Five Disturbed	
12	0.2	1-	1o	1o	1o	1+	1+	2-	1o	9o	4		
13	0.0	1-	0+	0o	0+	1-	0+	1o	1+	5-	3		
14	0.0	2-	0+	0+	0+	1+	1o	1-	1-	5+	3		18
15	0.6	0o	0+	0+	1o	2+	3-	3-	3+	13-	7		19
16	0.3	2-	1o	1-	1+	2o	2+	1+	2-	12o	6		20
17	0.7	2o	1+	1+	2o	1o	1+	4o	3-	16-	9		21
18	1.2	2o	3o	4o	4-	6+	3+	2+	3+	28o	26		28
19	1.2	3-	2o	2-	1-	2o	4-	5+	6o	24o	24		
20	1.5	7o	7-	6o	4o	5o	4o	3o	4-	39+	58		
21	1.2	5-	4-	5o	5o	3o	3+	3-	3o	30+	27	Ten Quiet	
22	0.6	2-	1+	3o	2-	2+	1+	2-	3o	16o	8		
23	1.0	4o	4+	4+	3o	4-	2-	1+	2o	24+	18		8
24	0.7	4-	2o	3-	2+	2o	1+	2-	2-	17+	9		10
25	0.6	2+	2+	2o	2o	1o	1o	3-	3-	16o	8		11
26	0.6	3+	3-	2+	2-	2+	2+	2o	2o	19-	10		12
27	1.0	2o	1+	1+	2-	3o	4o	5-	4-	22-	16		13
28	1.3	4-	3-	3o	4+	4o	4-	5+	4-	30+	26		14
29	0.9	3-	2+	3+	4+	3+	2o	3o	2+	23+	15		15
30	0.8	2o	2o	2-	2o	2+	3o	3-	3+	19o	10		16
31	1.0	4-	3o	3-	2o	3+	5-	2o	3+	25-	17	22	
Mean:		0.72								Mean:		13	25



# PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES

Kp till 1963 August 31

(Ks from Wingst and Göttingen till Sept. 12)

J.B.

COMMERCE - STANDARDS - BOULDER

<i>R</i>	Rot.- Nr.	1 <sup>st</sup> day	<i>C9</i>
665 532 122	19	J 23	... 23 12 ... 5 1 5 ... 35 443 64 ... 2 432
477 643 112	62	F 19	... 2 432 244 ... 22 214 62 ... 33 421 2 ... 243 4 ...
465 332 213	62	M 18	243 4 ... 12 ... 2 ... 13 243 2 67 636 52 ... 22 232
655 433 433	1762	A 14	... 22 232 356 3 3 322 112 21 ... 52 ... 2 3 442
322 454 432	63	M 11	2 3 442 ... 3 1 ... 31 1 5 211 323 ... 2 5 412
333 543 333	64	J 7	2 5 412 123 1 ... 1 3 34 1 125 444 222 ... 543 231
222 222 211	65	J 4	543 231 222 321 ... 343 224 476 521 ... 363 312
111 124 332	66	J 31	363 312 556 53 ... 12 555 54 1 64 54 ... 1 4 466
135 544 422	67	A 27	114 466 676 454 433 275 342 216 435 ... 411 622
444 223 553	68	S 23	411 622 547 533 343 665 623 635 246 ... 345 566
333 221 224	69	O 20	345 566 665 342 244 515 421 ... 3 ... 6 62 ... 5
531 213 431	1770	N 16	62 ... 5 654 512 226 2 ... 42 ... 1 63 433 67
213 211 231	71	O 13	433 677 65 3 ... 41 11 31 ... 2 ... 1 66
123 211 223	19	J 9	... 66 665 45 ... 12 32 ... 674 ... 27
321 112 211	63	F 5	... 27 556 521 ... 211 1 ... 1 412 ... 265
232 211 211	63	M 4	... 265 753 2 ... 1 21 ... 31 ... 1 ... 3 ... 56
224 444 311	1775	M 31	3 ... 56 542 2 ... 234 411 432 32 ... 2 ... 566
122 454 553	76	A 27	2 ... 566 45 2 213 445 253 ... 12 1 ... 21 245
223 225 642	77	M 24	21 245 323 311 47 321 111 12 253 321 5
122 221 112	78	J 20	321 5 643 231 4 553 343 111 ... 2 421 63
122 144 421	79	J 17	421 63 563 44 65 442 333 212 21 ... 2 126
123 422	1780	A 13	... 2 12 676 252 224 643 453 413 312 325

Symbol	1	2	3	4	5	6	7	8	■
<i>R</i> = 0	1 15	16 30	31 45	46 60	61 80	81 100	101 130	131 170	171
<i>C9</i> = 0	1	2	3	4	5	6	7	8	9
<i>Cp</i> =	0.0 0.1	0.2 0.3	0.4 0.5	0.6 0.7	0.8 0.9	1.0 1.1	1.2 1.4	1.5 1.8	1.9 2.5
<i>Ap</i> =	0 4	5 7	8 10	11 13	14 17	18 24	25 40	41 91	92 140 400

**Daily Geomagnetic  
Character Figures *C9*  
and  
Sunspot Numbers *R***

The musical K-diagrams are arranged in rows of 27 days, or solar rotations, in order to exhibit 27-day recurrence-tendencies. However, such recurrences (or solar M-regions) are more clearly seen in diagrams showing merely daily indices in combination of a table with a diagram, as in the attached sample covering all rotations from the beginning of 1962 through the middle of September 1963. The meaning of the symbols can be seen from the explanatory note on the diagram. The left border gives mean sunspot figures for 3 consecutive days, that is, for 9 parts of the rotation; the main part gives the geomagnetic activity, while the right-hand border give the first 6 days for the next rotation. - Such diagrams will be issued from time to time, perhaps every second month.

Leaflets of this kind showing activity since the beginning of 1957 (IGY) have been distributed 3 months ago; copies may be had from the undersigned.

1963 Sept. 12

J. B a r t e l s  
Chairman, IAGA, Commission  
Nr. 5  
Herzberger Landstr. 180  
34 Göttingen, Germany



CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS  
AUGUST 1963

NORTH ATLANTIC

NORTH PACIFIC

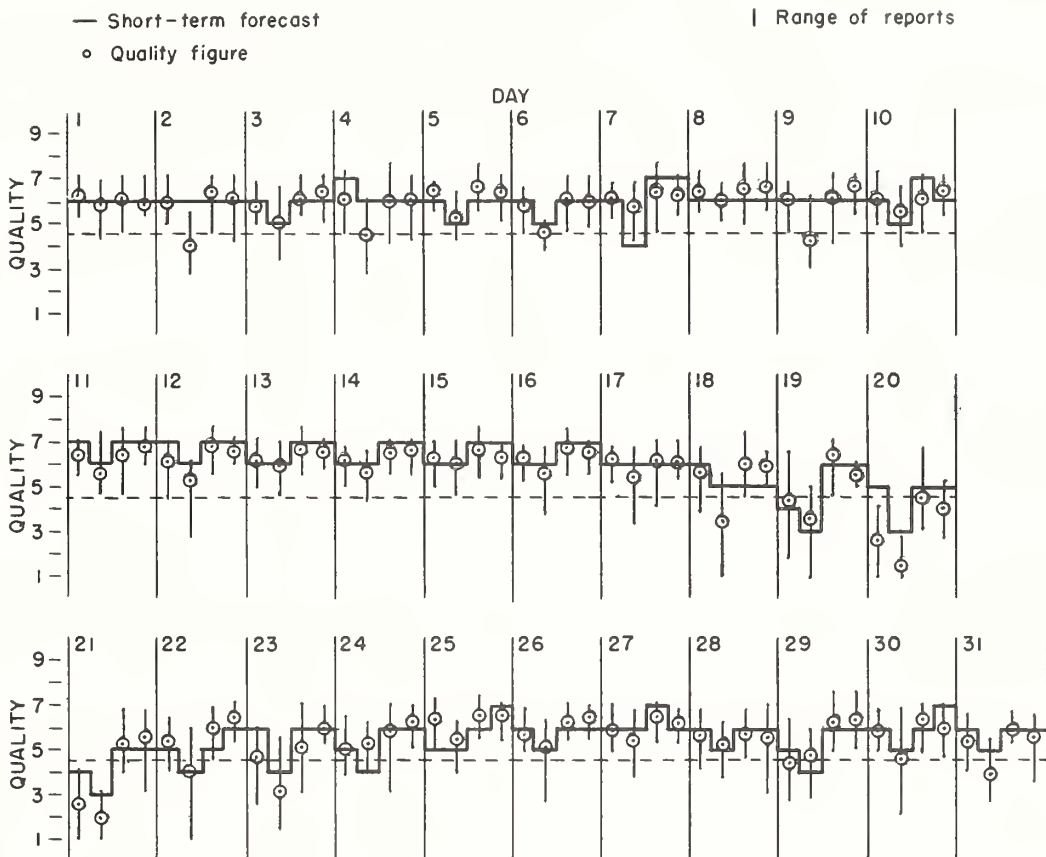
AUGUST 1963	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF WHOLE DAY				ADVANCE FORECASTS 1-7 REPORTS WHOLE DAY, ISSUED IN ADVANCE BY				GEOMAGNETIC K <sub>PP</sub>				NORTH PACIFIC 6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED AT WHOLE DAY				ADVANCE FORECASTS 1-7 REPORTS WHOLE DAY, ISSUED IN ADVANCE BY				GEOMAGNETIC K <sub>PP</sub>											
	00		06		12		18		00		06		12		18		00		06		12		18		00		06		12		18		00		06		12		18	
	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO			
01	6+	60	6+	60	6	6	6	6	60	5	5	5	5	3	3	3	3	6	6	6	6	5	5	5	5	6	6	6	6	5	5	5	5	6	6	6	6	3	3	
02	60	40	6+	6+	6	6	6	6	5+	5	5	5	6	3	2	2	2	6	6	6	6	5	5	5	5	6	6	6	6	5	5	5	5	6	6	6	6	3	3	
03	6-	50	60	6+	6	5	6	6	6-	6	6	6	6	3	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3		
04	6+	4+	60	6+	7	6	6	6	6+	6	6	6	6	3	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3		
05	6+	5+	7-	6+	6	5	6	6	6-	6	6	6	6	3	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3		
06	6-	5-	6+	60	6	5	6	6	6-	6	6	6	6	3	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3		
07	6+	6-	6+	6+	6	4	7	7	6+	6	6	6	6	3	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3		
08	6+	60	7-	7-	6	6	6	6	6+	5	5	5	6	3	1	1	1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3		
09	60	4+	6+	7-	6	6	6	6	6-	4	4	4	6	3	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3		
10	6+	6-	60	6+	6	5	7	6	60	4	4	4	6	2	2	2	2	6	6	6	6	5	5	5	5	6	6	6	6	5	5	5	5	6	6	6	6	3	3	
11	6+	6-	6+	7-	7	6	7	7	6+	6	6	6	6	1	1	1	1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	1		
12	60	5+	7-	7-	6	6	7	7	6+	6	6	6	6	1	1	1	1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	1	1		
13	6+	60	7-	7-	6	6	7	7	6+	6	6	6	6	0	1	1	1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	1	1		
14	6+	6-	7-	7-	6	6	6	7	6+	6	6	6	6	1	1	1	1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	0		
15	6+	60	7-	6+	6	6	7	7	6+	7	7	7	6	1	2	2	2	7	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	0		
16	6+	6-	7-	7-	6	6	7	7	6+	6	6	6	6	2	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	1	2		
17	6+	5+	6+	60	6	6	6	6	60	6	6	6	6	2	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2		
18	6-	3+	60	60	6	5	6	5	50	5	5	5	6	3	(4)	3	(4)	6	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2		
19	4+	4-	6+	6-	4	3	6	6	5-	5	5	5	6	4	4	4	4	6	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	(4)		
20	3-	1+	4+	40	5	3	5	5	(3+)	5	5	5	6	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	(7)			
21	3-	20	5+	6-	4	3	5	5	(3+)	6	6	6	6	4	(4)	3	(4)	2	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	(5)				
22	5+	40	60	6+	5	4	5	6	5+	4	4	4	6	4	(2)	2	(2)	3	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2			
23	5-	3+	50	60	6	4	6	6	(4+)	5	5	5	6	4	(2)	2	(2)	3	4	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	2	2			
24	50	5+	60	6+	5	5	6	6	6-	5	5	5	6	4	(4)	4	(4)	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	(5)			
25	6+	6-	7-	7-	5	5	6	7	6+	6	6	6	6	3	2	2	2	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2			
26	6-	5+	6+	7-	6	5	6	6	60	6	6	6	6	2	2	2	2	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2			
27	60	6-	7-	6+	6	6	7	6	6+	5	5	5	6	2	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2			
28	6-	5+	6-	6-	6	5	6	6	6-	5	5	5	6	4	(4)	3	(4)	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	(4)			
29	4+	5-	6+	6+	5	4	6	6	5+	5	5	5	6	4	4	4	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3			
30	60	5-	6+	60	6	5	6	7	6-	5	5	5	6	4	4	4	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	2			
31	5+	40	60	6-	6	5	6	6	50	6	6	6	6	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3			
Score: Quiet Periods				P	21	14	21	22	17	17	17	17					13	11	13	13	12	12	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
				S	6	6	9	8	9	9	9	9					0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
				U	0	0	0	0	0	0	0	0					0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
				F	0	1	0	0	2	2	2	2					0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
Disturbed Periods				P	1	1	0	0	0	0	0	0					2	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
				S	2	4	1	1	1	1	1	1					4	2	2	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5			
				U	1	2	0	0	1	1	1	1					0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
				F	0	3	0	0	1	1	1	1					0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			



CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS  
NORTH ATLANTIC

VIIIb

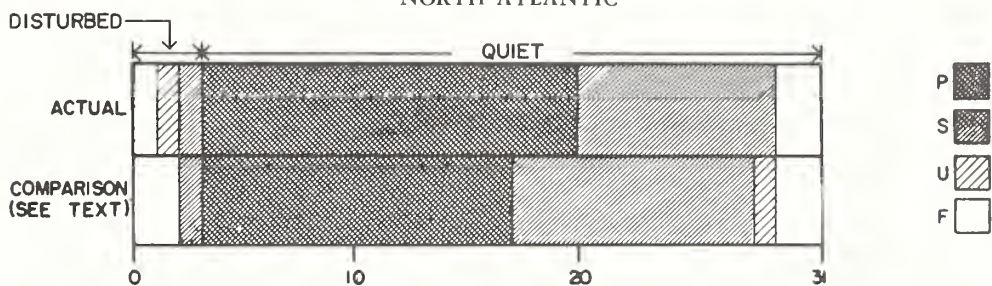
AUGUST 1963



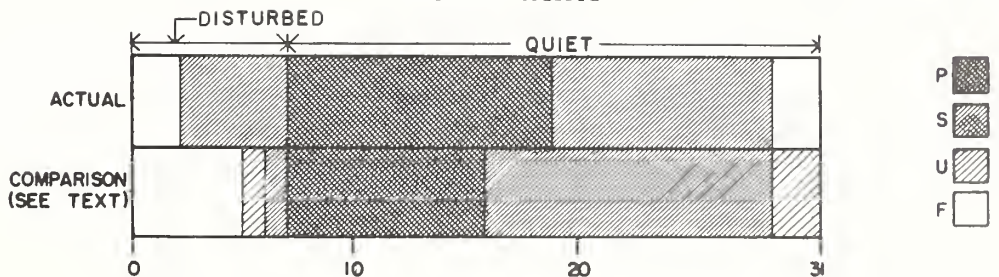
Outcome of advance forecasts--final estimates (1 to 7 days ahead)

COMMERCE - STANDARDS - BOULDER

NORTH ATLANTIC

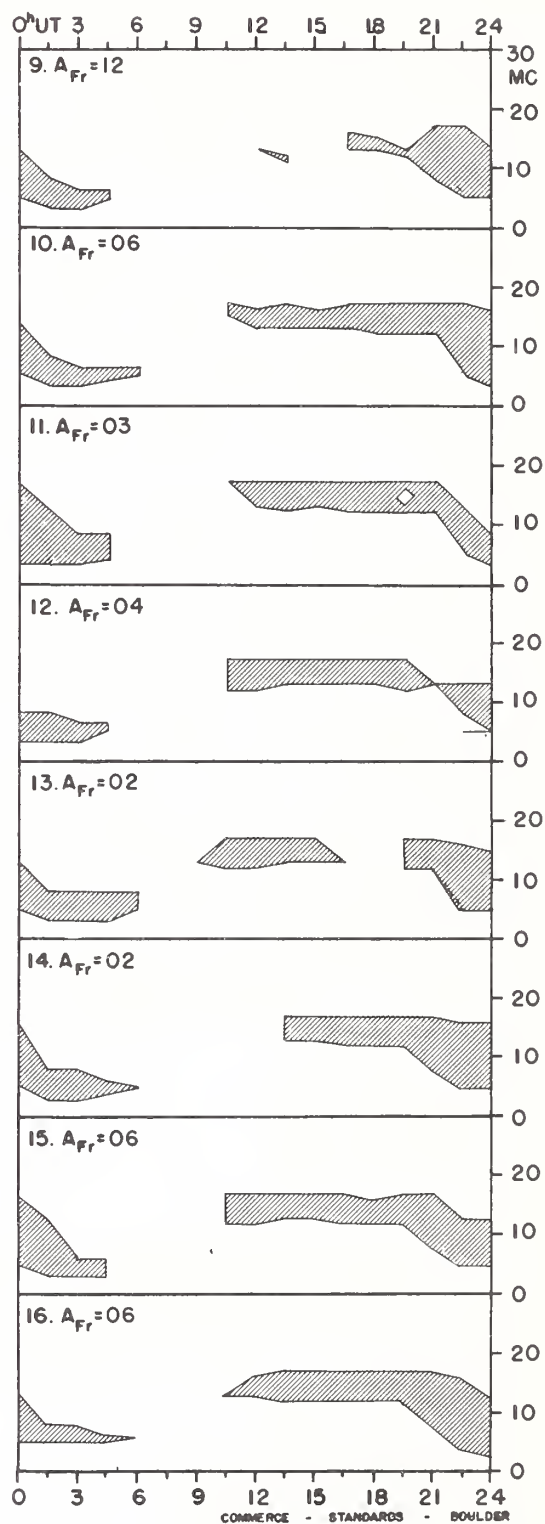
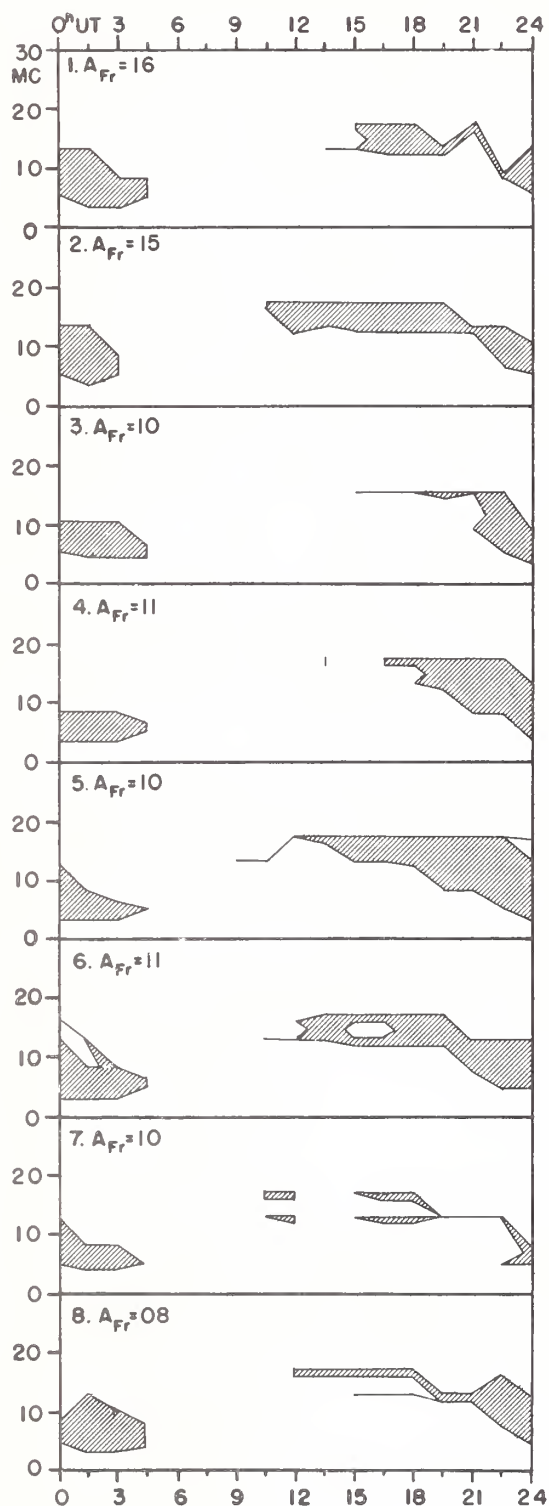


NORTH PACIFIC

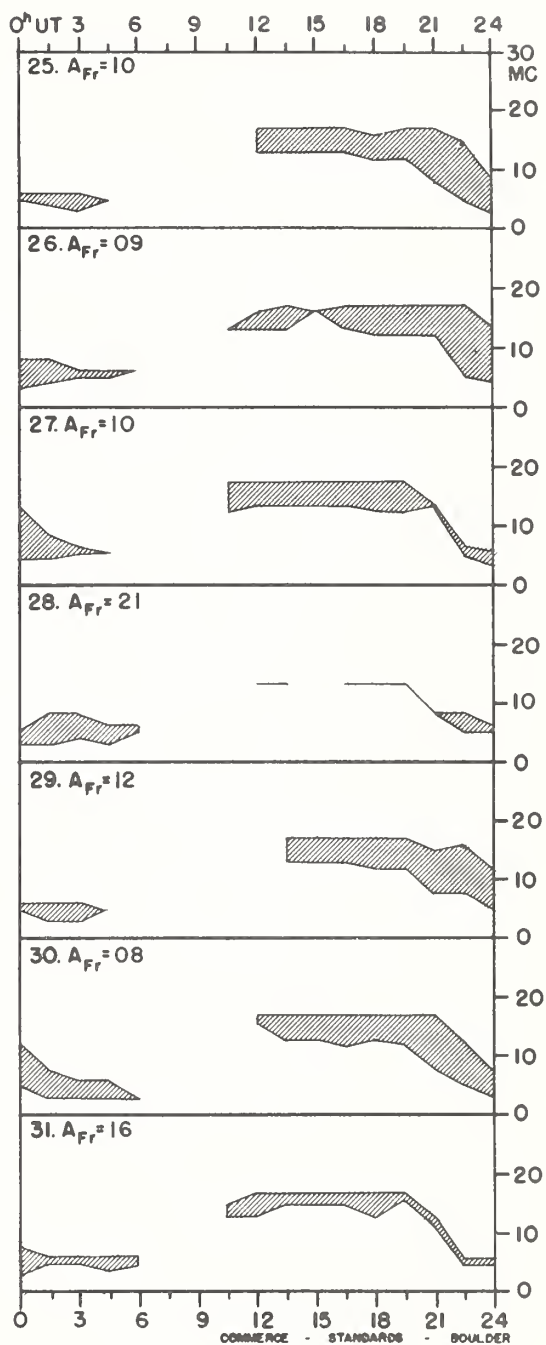
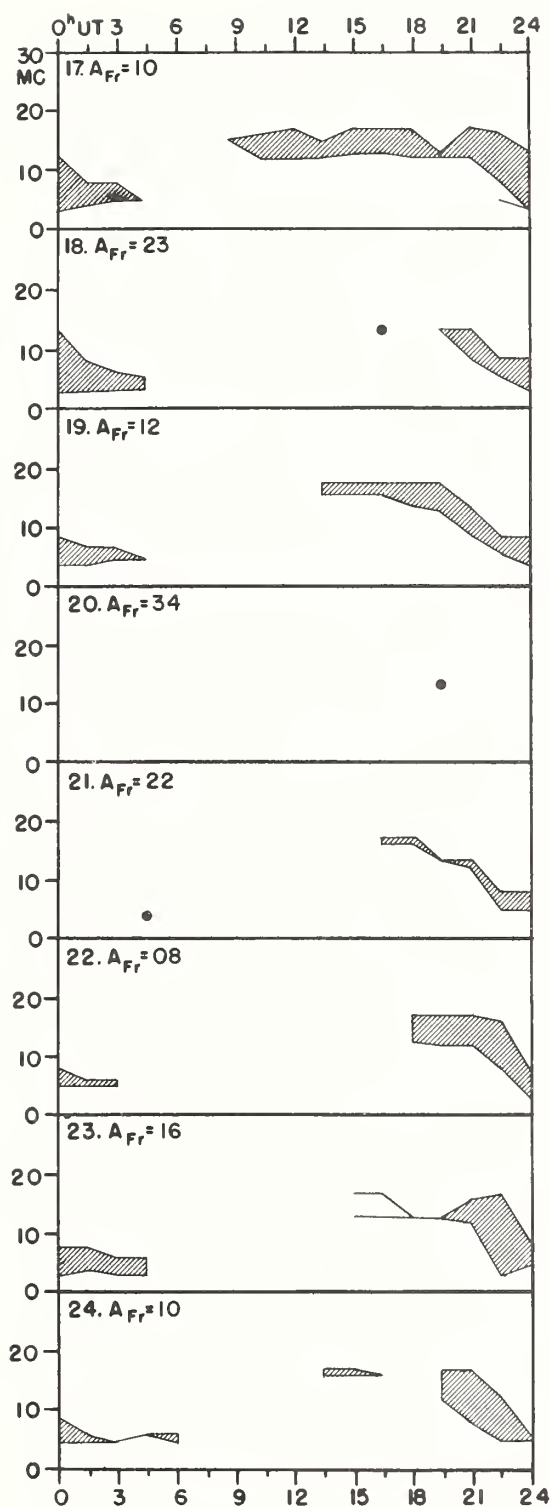


COMMERCE - STANDARDS - BOULDER

AUGUST 1963



AUGUST 1963



Adapted from Observations by Deutsches Bundespost

INTERNATIONAL URSIGRAM  
AND WORLD DAYS SERVICE

SEPTEMBER 1963

Issued Sept. Day/Time U.T.	Advance Geophysical Alert	No.	World-Wide Geophysical Alert	Special World Intervals
12/2205	Sac Peak, Solar Flare, One Plus 12/2015Z			
13/1835	McMath, Solar Flare, One Plus 13/1711Z			
14/1600		205	Magnetic Storm 13/19XXZ	Start
15/1212	Lockheed, Solar Flare, Two Plus 15/0027Z			
15/1600		206		Continue
16/1600		207		Continue
17/1600		208		Continue
17/1710	Deep River, Cosmic Ray Decrease 17/05XXZ			
18/1515	McMath, Solar Flare, Two 18/1410Z			
18/1600		209		Finish
20/1812	Huancayo, Solar Flare, One Plus 20/1702Z			
21/1950	Ft. Belvoir, Magnetic Storm 21/1415Z			
22		210	Magnetic Storm Aurora Probable 21/1414Z	Start
23		211		Finish
25		212	Magnetic Storm 24/21XXZ	
28		213	Magnetic Storm 27/1940Z	



